RMC

Revista Mineira de Contabilidade

Journal of Accounting of Minas Gerais

Uma publicação do CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

V. 26, nº. 1, january/april 2025
RMC, Revista Mineira de Contabilidade,
Belo Horizonte, http://revista.crcmg.org.br
ISSN: 2446-9114

Publication date: May 16, 2025

JOURNAL OF ACCOUNTING OF MINAS GERAIS
Quarterly publication
Volume 26, n.1, january/april 2025
ISSN 2446-9114
CRCMG
Conselho Regional de Contabilidade de Minas Gerais
Rua Cláudio Manoel, 639, Savassi – Zip Code 30140-105
BH/MG – Telephone: (31) 3269-8400 - E-mail: crcmg@crcmg.org.br
Desk Editor: Fernanda Oliveira – MG 06296 JP
Content Editor: Déborah Arduini – MG 15468 JP
Editorial Assistent: Suélen Teixeira de Paula
Journal layout: Phábrica de Produções
Capa: Phábrica de Produções
E-mail: revista@crcmg.org.br

Journal of Accounting of Minas Gerais, Volume 26, Number 1, First Quarter of 2025.
Belo Horizonte: Conselho Regional de Contabilidade de Minas Gerais.
Quarterly journal
ISSN 1806-5988

2– Accounting – Journal

CDU657 (051)

This is an Open Access quarterly journal, available online through the Sistema Eletrônico de Editoração de Revistas – SEER (Electronic System of Journal Publications), a public electronic system that promotes the democratization of scientific knowledge by providing free and unrestricted access to it.
The Journal of Accounting of Minas Gerais uses SEER as a journal management system. The SEER system is a translated and adapted version of the Open Journal Systems (OJS) made by the Instituto Brasileiro de Informação em Ciência e Tecnologia (IBICT). This free software was created by the University of British Columbia. It aims to help editors manage the entire submission reviews process including online publication and indexing. Available at: http://revista.crcmg.org.br/

CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

Editor's Note

Dear readers,

In 2025, issue number 26 of the 1st quarter of the Revista Mineira de Contabilidade (RMC) publishes all articles in Portuguese and English. In this way, the MRC takes another step to expand the dissemination of the articles published in its editions, as well as to meet the purpose of disseminating the studies published here to other countries.

Thus, this edition begins with a guest editorial entitled "Incremental change or reorientation of the bases of teaching and learning: how profound will the transformation in accounting education be from the DCNs?". The text was developed by Marcelo Marchine Ferreira and Alison Martins Meurer. The editorial proposes to discuss the main pillars that underlie the new National Curriculum Guidelines for Accounting Sciences courses (DCNs).

Next, the study by Nicole Rocha Carvalho, Renata Mendes de Oliveira, Marli Auxiliadora da Silva and Railene Oliveira Borges analyzed the perception of students and professors about the teaching-learning of content related to ancillary tax obligations in the Accounting course of a federal higher education institution. The title of the article is "Accessory Tax Obligations: perceptions in relation to teaching in Accounting course".

The next article is entitled "Managerial artifacts and innovation: an investigation at the Goiania hippie fair", which was developed by Stela Ribeiro de Sant'Ana and Juliano Lima Soares. The study considered the context of the Hippie Fair of Goiânia, which has a historical-cultural heritage value for the city, since it moves the entire production chain and generates a relevant impact on the local economy, to verify if there is a positive relationship between the use of managerial artifacts and the degree of innovation by its entrepreneurs.

In the work "Intergovernmental transfers and public spending: an analysis of the flypaper effect in the municipalities of Minas Gerais", by the authors Elizete Aparecida de Magalhães, Veronica Costa Silva, João Paulo de Oliveira Louzano and Vasconcelos Reis Wakim, the objective was to assess whether there is a flypaper effect in the fund in the spending of the municipalities of Minas Gerais. With the objective of analyzing the perception of the employees of the Municipal Councils of Minas Gerais about the quality of transparency of their electronic portals, the study entitled "Perceptions of municipal employees involved in legislative transparency in municipalities in Minas Gerais", was developed by Verônica Ketley Silva, Michelle Aparecida Vieira, Rodrigo Silva Diniz Leroy and Robson Zuccolotto.

The article by Lúcio de Souza Machado, Laura Bianca Dias Barbosa and Michele Rílany Rodrigues Machado is entitled "Influence of COVID-19 on Fiscal Aggressiveness of Electric Energy Sector Companies Listed on B3" and aims to investigate whether the covid-19 pandemic impacted the fiscal aggressiveness of companies listed on the Brazilian stock exchange (B3) in the electricity sector. Entitled "Independent Audit Rotation and Earnings Management: An Analysis of the Brazilian Agricultural Sector" this study was developed by Michele Cristina Bueno de Sena Tomaz, Daniel Eduardo de Oliveira, Laura Edith Taboada Pinheiro, Juliano Lima Pinheiro and José Roberto De Souza Francisco; in order to verify how the management of results of companies in the agricultural sector is affected by the rotation of independent auditing. Finally, in order to verify the interaction between CEO narcissism and board of directors moderation in the management of real results, authors Niara Gonçalves da Cruz, Renata Turola Takamatsu and Fernanda Alves Cordeiro present the article "CEO Narcissism and Real Activity Management".

Thus, we congratulate the authors who had their articles approved and the publication of their research in the MRC. Research that contributes to the knowledge of the area of Accounting Sciences. We thank the authors for their vote of confidence, for submitting their articles to the MRC and believing in the quality of their evaluation process, and the evaluators for their dedication in carrying out a useful work. We wish you all an excellent reading! Profa. Dr. Nálbia de Araújo Santos

RMC, Revista Mineira de Contabilidade, Belo Horizonte, V. 26, nº. 1, january/april 2025
Disponível *online* em https://revista.crcmg.org.br/rmc / DOI:https://doi.org/10.51320/rmc.v25i2.1652 ISSN: 2446-9114

Editorial

INCREMENTAL CHANGE OR REORIENTATION OF THE FOUNDATIONS OF TEACHING AND LEARNING: HOW PROFOUND WILL THE TRANSFORMATION IN ACCOUNTING EDUCATION BE FOLLOWING THE NEW NCGS?

Marcelo Marchine Ferreira (UNESPAR)
mmarchine@gmail.com https://orcid.org/0000-0002-0102-7622

Alison Martins Meurer (UFPR)
alisonmeurer@ufpr.br https://orcid.org/0000-0002-3704-933X

Competency. This is the pillar that underpins Resolution CNE/CES No. 01/2024, which addresses the new National Curriculum Guidelines for Accounting programs (NCGs). Not that Resolution CNE/CES No. 10/2004 (the previous NCGs) ignored it, but it did not consider it, at the time, as the central focus of the educational process it guided. Those were different times, and perhaps the needs were also different. Twenty years have passed, and during this interval, many changes have taken place. We have witnessed profound social, geopolitical, and economic transformations. These transformations, especially in business, have significantly impacted the accounting profession. The intensification of technology in the field, through the digitization of a large part of accounting processes and, more recently, the application of artificial intelligence, for example, has altered – and even redefined – the profile of professional practice and, therefore, the professionals themselves.

And what is "competency"? This is the first question we must discuss to achieve a reasonable understanding of what the new NCGs present for accounting education. We need to understand its meaning within the educational process. This editorial reflects on this through two theoretical and conceptual perspectives: that of Basil Bernstein and that of Philippe Perrenoud. Bernstein (2003) develops a sociological concept of competency related to structures of power and control in education. According to the author, competencies are legitimized in educational contexts that are not neutral but rather reflect dominant social structures that determine which abilities are recognized as valid. Thus, Resolution CNE/CES No. 01/2024, by establishing the specific competencies for accountants, is embedded in the process of selection and legitimation of certain knowledge and skills over others – a process mediated by power relations in the professional and academic fields.

Perrenoud (1999), on the other hand, presents a more pragmatic and operational educational approach to the concept of competency, which is the ability to mobilize various cognitive resources to address specific situations. It is not just about possessing knowledge but knowing how to activate it at the right moment to solve real-world problems. Competencies manifest in situated action and mobilize specific technical knowledge. This conception is echoed in Resolution CNE/CES No. 01/2024, especially when we observe Appendix I articulates each technical competency with specific skills.

When juxtaposed, the two theoretical perspectives enrich our understanding of the new NCGs. Perrenoud's view helps us grasp the pedagogical and practical potential of the competency-based approach to professional training. Bernstein's perspective, in turn, alerts us to the sociopolitical dimensions of this shift, reminding us that every educational reform takes place within a field permeated by power relations and social control. Adopting a competency-centered model in accounting education represents a change beyond a mere technical pedagogical update. It signals a repositioning within the social and professional structures that define what it means to be an accountant in Brazil.

DO WE HAVE A PARADIGMATIC MILESTONE FOR ACCOUNTING EDUCATION?

Even though the process that led to the new National Curriculum Guidelines – NCGs – occurred over a short period and with limited involvement and diversity of stakeholders – especially academia – the publication of Resolution CNE/CES No. 01/2024 undeniably represents a significant transition (yet to be realized) for higher education in Accounting in Brazil. After 20 years under Resolution CNE/CES No. 10/2004, the new NCGs prompt structural changes in the programs' training. This change marks a transition from the current prevailing teaching model, centered on transmitting disciplinary content and the notion of performance (Bernstein, 2003), to a competency-based approach. In this sense, curricula must be rethought, re-signified, reoriented, and reorganized regarding the design and execution of the students – future professionals – educational journey. This is because the transition induced by the NCGs represents a reorientation of the foundations of teaching and learning in accounting.

What we are observing, therefore, is a proposed paradigmatic shift in accounting education, which entails more than a mere adjustment of syllabi and subjects or changes in teaching methods and techniques. It will require deep reflections on the formative objectives, the educational foundations supporting teaching, the teaching and learning methodologies, the assessment systems, and, above all, the very meaning of education in Accounting – i.e., the intended professional profile. This change also redefines the roles of teachers and students, thus establishing new standards for educational practices and students' learning experiences. It is, therefore, a matter of rethinking how teaching will engage with accounting knowledge in context – that is, how this knowledge will be constructed, connected, and articulated within the context of professional competencies throughout the program.

The challenges that programs will face in the transition between models – and that some are already facing – are those related to planning and implementing changes without resorting to improvisations or "patchworks" made in curricula merely to meet the formal requirements of the NCGs. The risk of this happening, however, is considerable. The history of Brazilian education draws some parallels with such scenarios, in which curricular reforms turned into cosmetic adjustments without substantive impacts on teaching, learning, and pedagogical practices. In this case, the major risk is that we will witness ineffective adjustments that fail to significantly impact the effective development of teaching practices that truly shape future professionals. After all, professionals whose training is more aligned with the "demands" of the labor market were the driving force behind the NCGs update.

To avoid a scenario where the NGCs undergo only cosmetic adjustments, curriculum reform must be understood and conducted as a collective construction process involving coordinators, faculty, students, and representatives of the professional sector – in other words, a diversity of stakeholders. Does that sound somewhat utopian? Perhaps. But it is not unfeasible or impossible in the real world. After all, what is at stake is not merely formal compliance with a resolution but the relevance of professional training in accounting in Brazil for the coming years – perhaps decades. The programs that see the new NCGs as an opportunity to re-signify the education they offer – and not just as a regulatory obligation – will certainly be the ones that graduate professionals best prepared for the world of work challenges. The choice between creating a genuinely transformative curriculum or just a regulatory "makeshift extension" lies in the hands of each institution and program – and generations of professionals will feel its consequences.

THE CONTEXT AND THE PROFESSORS: PILLARS FOR AN EFFECTIVE TRANSFORMATION

An important question to raise within this transformation process that is beginning for most programs (and has already begun for some) is: What are/will be the decisive factors for this change to be successful and effective? We can already offer a preliminary answer: it depends. That's right. It will depend on the specific circumstances and conditions of each HEI and each program. In any case, we understand and highlight two factors that must be assessed on a case-by-case, program-by-program basis: the context and the professors. Both factors also present challenges.

The logic and implementation of a competency-based curriculum require an institutional context that offers adequate structural, pedagogical, and cultural conditions. This is the first challenge. Programs, for example, will need to consider key aspects in their planning, such as curricular flexibility to integrate theory and practice; learning environments that simulate professional realities; continuous and diversified assessment processes (in form and content); as well as effective partnerships with the professional and productive sectors. In this sense, it will be essential that the institutional environment fosters and drives this process, as this is not merely a temporary transformation.

The deadline indicated in the guidelines refers, in fact, to the time frame for preparing and finalizing the transformation plan. The implementation of the transformation after that will be the real crux of the matter. With a favorable institutional environment, the transition to a competency-based curriculum may represent a formal and bureaucratic adjustment and a true transformation in accounting education. In fact, the word transformation is quite appropriate here. To transform can mean many things. In this context, it seems fitting to understand it as "changing form" or "making something different from what it was or has been."

At the heart of this transformation are the professors, who will play a decisive role in the success or failure of implementing the new NCGs. Ultimately, it is they who will bring into the classroom the principles and educational practices of competency-based teaching and learning. However, many instructors currently teaching in accounting programs (if not the majority) were trained and built their professional experience within traditional educational models, making this transition even more challenging. To teach competencies, professors themselves will need to develop specific pedagogical competencies: the ability to design authentic and meaningful learning situations, the skill to mediate knowledge construction processes, the competency to assess complex performances beyond simple content recall, and the aptitude to work in interdisciplinary and collaborative ways with colleagues from various fields.

Faculty development will be a fundamental – perhaps the most critical – element and will therefore require significant investment, both from the professors in seeking the necessary professional development and from the institutions through ongoing faculty development programs beyond one-off training sessions. Permanent spaces for training, reflection, and pedagogical experimentation must be created, allowing professors to reconstruct their teaching, learning, and assessment conceptions. Here, the word transformation is also relevant – that is, educational practices must change. After all, who, if not the professor, makes it all happen?

Furthermore, programs will need to rethink their faculty selection and evaluation processes, valuing technical accounting expertise and, in some cases, the volume of intellectual production. We might say that evaluating and valuing teaching expertise must follow a different path – one that also recognizes the teaching knowledge base of professors. Without investment in transforming teaching practices, we risk realizing, sometime in the future, that curricular changes remain only on paper, failing to impact the quality of the education delivered – precisely the "makeshift extension" scenario mentioned earlier, which would not yield the substantive transformations that accounting education in Brazil requires.

COMPETENCIES AND THE ARTICULATION BETWEEN KNOWING, DOING, AND BEING

The curricular changes prompted by the new NCGs and the emphasis on reconfiguring the pedagogical context and teaching practices do not represent an arbitrary or decontextualized shift. For over a decade, various guiding frameworks, scientific research, and expert studies have highlighted the social demand for "well-prepared" professionals. That is, professionals who establish closer connections with the world of work (or market needs) and who demonstrate the ability to effectively apply the knowledge acquired in academic environments in real professional situations.

Whereas teaching under the approach induced by the previous NCGs was predominantly focused on transmitting knowledge through often compartmentalized courses with little integration throughout the program, what we are about to witness is (and we hope will be) a profound change in the educational structure for training accountants. Even though we hope this transformation occurs with the necessary depth and scope, we already know a few things in advance: it will be a slower rather than a fast process; in many cases, it will involve trial and error; there will be a search for formulas and recipes on how to manage the process; and there will be patches, makeshifts, and cosmetic fixes. As we have already stated, this will not be a simple process. The many new elements introduced by the NCGs will force programs to learn new ways of organizing and delivering accounting education – education that can be perceived as truly aligned with the demands of the labor market.

It is important to highlight that the shift between teaching approaches does not necessarily imply a radical rupture or a strict dichotomy with the previous model. Many successful experiences already established in numerous programs – those based on content transmission – will likely continue to coexist with others that will now be incorporated. These existing experiences should serve as a foundation for shaping the "new necessary," meaning new competency-based educational practices. Thus, we are talking more about an evolution than a curricular revolution – that's why we said this process will be slower than fast.

At this point in our reflections, we must emphasize that content and knowledge are not dispensable within the competency perspective. In this regard, we quote Perrenoud (1999), who emphasizes that competency does not exist without the knowledge component but is not limited to that component alone. The effective development of competency requires a proper balance between, on the one hand, the separate development of its individual elements and, on the other, the articulation of these components in real practical application contexts.

Well, the fact is that the change – as is already quite clear – refers to competency-based education, which, according to the NCGs, must intentionally and systematically articulate three essential dimensions: knowledge (knowing), skills (doing), and attitudes (being). Thus, addressing competencies means considering the capacity to mobilize and integrate knowledge, skills, and attitudes, applying them in a timely and contextualized manner to situations that resemble professional problems – ranging from the simplest and most routine to the most complex. A graduate in Accounting, for example, may have a deep understanding of accounting management techniques but be unable to apply them at the appropriate moment – or may not even be competent in their application if they lack sufficient mastery of the knowledge that underpins such techniques.

The 2024 NCGs, therefore, propose that the focus – previously centered on the content necessary for training – now be shifted primarily to the professional profile to be developed and the competencies required for that profile. The question that programs must ask and certainly will, is something along these lines: considering our context and characteristics, what professional profile do we want (and can) offer society? From this foundational question, everything else should begin. The graduate profile will define the path to follow in reorganizing the training provided by the programs. In fact, this should have always been the case. But it hasn't always been so. The reality now is that we will have to think about and intentionally and systematically design the characteristics of the defined profile, articulating it with the knowledge, skills, and attitudes necessary to deliver what the Pedagogical Political Projects promise.

Disponível *online* em https://revista.crcmg.org.br/rmc / DOI:https://doi.org/10.51320/rmc.v25i2.1652 ISSN: 2446-9114

Therefore, we will have to think about how – and to what extent – the six core competencies indicated in the NCGs will be developed throughout the program, namely: (i) the ability to prepare, analyze, and report relevant and reliable information; (ii) supporting management in strategic planning and decision-making; (iii) auditing financial and non-financial information and assisting in the assurance process; (iv) understanding and applying tax and social security legislation; (v) conducting judicial and extrajudicial expert work; and (vi) understanding how information technology contributes to data analysis and information generation.

Based on the arguments presented, we consider that one of the main challenges for developing competencies in accounting education will be materializing them in educational practice – ensuring they go beyond mere curricular formalities and are truly embedded in students' learning experiences. Competency only genuinely exists when it is expressed in real contexts by developing problem-based scenarios or simulations that require its application. These situations must become progressively more complex throughout the learning journey, enabling students to develop increasing levels of autonomy and proficiency.

The transition to a competency-based curriculum will, therefore, require programs to rethink what they teach and, most importantly, how they teach. Learning experiences must be redesigned to promote integration between theory and practice, stimulate the resolution of complex problems, encourage collaborative work, and foster students' reflective capacity. As we hope it is clear, this redesign will not occur spontaneously or merely through minor curriculum adjustments – whether makeshift, patchwork, or cosmetic.

AND HOW DO WE KNOW IF THE STUDENT IS BECOMING COMPETENT? COMPETENCY-BASED ASSESSMENT: ANOTHER CHALLENGE

If the transformation of accounting education – as discussed earlier – requires a profound reorientation of pedagogical practices, curriculum organization, and the professor's role, the same applies to student assessment. This is another key area affected by the proposed change and brings considerable challenges. That's because assessing competencies demands different ways of conceptualizing and conducting evaluations. We can assume that a significant shift will be necessary in many of the assessment processes currently used in accounting programs, which are predominantly focused on verifying the acquisition and memorization of disciplinary content.

The competencies-based logic established by the 2024 NCGs assumes that assessment must go beyond the simple verification of "knowledge," also incorporating the dimensions of "doing" and "being." How can we assess, for example, the competency to "prepare, analyze, and report relevant and reliable financial and non-financial information" without placing the student in real or simulated situations that require the integrated mobilization of the knowledge, skills, and attitudes necessary to fulfill that competency? What will be the criteria for determining whether students demonstrate competencies? Are our traditional assessment methods – exams and assignments – enough for this purpose? Perrenoud (1999) argues that determining what a student knows is less complex than verifying their competencies since the latter can only be genuinely assessed when we observe the student solving complex problems.

Therefore, seeking differentiated forms of assessment is yet another of the many challenges that the educational model proposed by the NCGs invites us to reflect on. Certainly, the NCGs place faculty before a decision: to fully embrace that the accounting program belongs to the applied social sciences and, as such, may not always have a single correct answer, a single decision, or a single path to be followed by students – and by professors as well, why not? We believe that diagnostic and formative assessments will gain more space. After all, if we need to assess students' ability to integrate various attributes, summative assessments alone will not be sufficient to achieve this goal. In this sense, it will be necessary to break away from the traditional assessments based solely on a quantitative approach, including adopting qualitative criteria.

As emphasized at other points, it is not our intention to marginalize what has been achieved so far but rather to provoke reflection on what can and should be improved to truly accomplish what the new NCGs propose. On the one hand, there is a pressing need to change the current standard of education; on the other, the search for alternative teaching methodologies and assessment methods must be grounded in solid theoretical frameworks – lest we fall into the trap of educational fads.

AND THE ROAD AHEAD?

Throughout this editorial, we sought to critically and reflectively overview the paradigmatic shift proposed by the new NCGs for accounting programs. The guiding thread of our argument highlights that we are facing a decisive moment for Brazilian accounting education – a crossroads between substantive transformation and mere bureaucratic compliance. The central points discussed included the conceptual shift from content-based teaching to a competency-based model, the need to reconfigure institutional contexts, the pivotal role of professors as agents of change, and the inherent assessment challenges within this new framework.

However, the challenges we have listed represent only the tip of the iceberg. The effective implementation of the new NCGs will involve other equally significant challenges not addressed in this text. Among them, we highlight the need to align academic training with the emerging demands of the digital world; the effective incorporation of social, environmental, and governance dimensions into educational environments; the development of methodologies for systematic alumni tracking; and the operationalization of supervised internships or simulation laboratories for accounting practice. Added to this is the challenge of effectively integrating extension activities into the curriculum.

Therefore, the points of concern raised here are just a few of the multiple dimensions that will need to be rethought and addressed throughout the changes. There are also, for example, issues related to the regional specificities of the programs, the heterogeneity of Brazilian higher education institutions, and the disparities in available resources for implementing the required changes. The two-year deadline established for the mandatory implementation of the new guidelines adds a temporal pressure that intensifies the urgency of the required transformations. Within this short time frame, institutions will have to revise curricular documents and promote a true metamorphosis in their educational conceptions and practices.

a) In this sense, we believe that many concerns and questions are crossing the minds of those who are and will be involved in this change process. We describe some of them below, most of which were explored throughout this editorial. As for the answers? Well, they will have to be built collectively by everyone involved:
b) Is this the moment to more strongly value internships, integrative projects, extension activities, and company partnerships as strategies to achieve the desired training outcomes?
c) How can we consistently and reliably identify whether competency has truly been developed throughout students' learning paths?
d) Do the current assessment models and tools allow us to properly identify the development of the intended competencies?
e) What lessons can we draw from international experiences in addressing these challenges?
f) How can we incorporate other competencies – such as socioemotional ones – equally valued by the market into program curricula?
g) What are the most pressing faculty development needs to ensure the successful implementation of the NCGs?
h) How can we assess, in the future, whether competency-based training truly meets the labor market's expectations?

We are, therefore, facing a defining moment for accounting education in Brazil. The new NCGs do not merely represent a regulatory update after two decades; they signal a reconceptualization of what it means to train accountants in a world marked by rapid technological, economic, social, and environmental changes. The success of this transition will not be measured by how quickly institutions formally adapt their curricula but by their effective capacity to transform the formative experience of students and, consequently, the profile of professionals who reach the market. The challenge has been set, and the future of the accounting profession in Brazil will be deeply influenced by the choices made by educational institutions in the coming months and years. But we must not forget that the path to consistently reorientating the foundations of teaching and learning for professional accounting education is far less enticing than the one that leads to the improvisation of precarious solutions – like a "makeshift extension with leaks." Therefore, what is truly at stake is not just regulatory compliance but the construction of a legacy: either we train professionals capable of meeting challenges with competency and strategic vision, or we risk perpetuating an educational practice that no longer meets professional demands.

REFERENCES

Bernstein, B. (2003). A pedagogização do conhecimento: Estudos sobre recontextualização. *Cadernos de Pesquisa*, 75–110. https://doi.org/10.1590/S0100-15742003000300005

Brasil. Ministério da Educação. Conselho Nacional de Educação. Câmara de Educação Superior. (2004). *Resolução CNE/CES nº 10, de 16 de dezembro de 2004 - Institui as Diretrizes Curriculares Nacionais para o Curso de Graduação em Ciências Contábeis, bacharelado, e dá outras providências*. http://portal.mec.gov.br/cne/arquivos/pdf/rces10_04.pdf

Brasil. Ministério da Educação. Conselho Nacional de Educação. Câmara de Educação Superior. (2024). *Resolução CNE/CES nº 01, de 27 de março de 2024 - Institui as Diretrizes Curriculares Nacionais do Curso de Graduação em Ciências Contábeis, bacharelado. http://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=257031-rces001-24&category_slug=marco-2024&Itemid=30192*

Perrenoud, P. (1999). Construir competências é virar as costas aos saberes. *Revista Pátio, Porto Alegre: ARTMED, ano*, *3*, 15-19.

SUMMARY

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 1, Pages 11 - 25, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1614

CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

ACCESSORY TAX OBLIGATIONS: PERCEPTIONS IN RELATION TO TEACHING IN ACCOUNTING COURSE

OBRIGAÇÕES TRIBUTÁRIAS ACESSÓRIAS: PERCEPÇÕES EM RELAÇÃO AO ENSINO NO CURSO DE CIÊNCIAS CONTÁBEIS

This article was accepted and presented at the XVII Congresso ANPCONT, held from November 29 to December 1, 2023, in São Paulo, Brazil.

RESUME
The aim of the study was to analyze the perception of students and professors about the teaching and learning of content related to accessory tax obligations in Accounting course at the Federal University of Uberlândia, Pontal campus. The research is descriptive in nature, with a quantitative approach to data analysis. The data was collected through questionnaires, with 84 responses from students and nine responses from teaching staff. The results show that students don't feel prepared to work with accessory tax obligations, just as there are professors who don't feel qualified to teach subjects that deal with this issue. Among the teaching strategies for approaching subjects that include accessory tax obligations, there is agreement among the opinion of students and professors, who highlighted lectures and expositive classes as being the most used. It was noted that the curriculum of the course analyzed provides a basic understanding of these obligations, with some students and professors considering the content offered to be satisfactory for the job market, while others classified it as unsatisfactory In general, students and professors emphasize the importance of teaching obligations, including the need for extracurricular activities to complement and expand the teaching-learning process and, consequently, this knowledge.

Key words: Accessory Tax Obligations. Teaching and learning. Teaching strategies. Students. Professors.

RESUMO
O estudo teve como objetivo analisar a percepção de discentes e docentes acerca do ensino-aprendizagem de conteúdos relacionados às obrigações tributárias acessórias no curso de Ciências Contábeis da Universidade Federal de Uberlândia, campus Pontal. A pesquisa possui natureza descritiva, com abordagem quantitativa em relação à análise dos dados. Os dados foram coletados por meio de questionários, com a obtenção de 84 respostas dos discentes e nove respostas do corpo docente. Os resultados demonstram que os discentes não se sentem preparados para trabalhar com as obrigações tributárias acessórias, assim como existem docentes que não se sentem capacitados para ministrar disciplinas que trabalhem conteúdos relativos à temática. Dentre as estratégias de ensino para abordagem dos assuntos que compreendem obrigações tributárias acessórias, existe uma concordância entre a opinião dos discentes e docentes, que destacaram palestras e aulas expositivas como sendo as mais utilizadas. Observou-se que, a matriz curricular do curso analisado oportuniza compreensão básica em relação às referidas obrigações, sendo que há discentes e docentes que consideram que os conteúdos ofertados são satisfatórios para o mercado de trabalho, enquanto outros os classificaram como insatisfatórios. De forma geral, os discentes e docentes ressaltam a importância do ensino das obrigações, inclusive ressaltando a necessidade de atividades extracurriculares para complementação e expansão do processo ensino-aprendizagem, e por consequência, desse conhecimento.

Palavras-chave: Obrigações Tributárias Acessórias. Ensino-aprendizagem. Estratégias de ensino. Discentes. Docentes.

Renata Mendes de Oliveira
Doutora em Contabilidade pela Universidade Federal de Santa Catarina (UFSC). Mestre em Contabilidade pela Universidade Federal do Paraná (UFPR). Graduada em Ciências Contábeis pela Universidade Federal de Uberlândia (UFU). Docente do curso de Ciências Contábeis na Universidade Federal de Uberlândia (UFU), campus Pontal. E-mail: renatamendes@ufu.br. Lattes: http://lattes.cnpq.br/5124448021356548. ORCID: https://orcid.org/0000-0003-2541-1511

Marli Auxiliadora da Silva
Doutora em Educação pela Universidade Federal de Uberlândia (UFU). Mestre em Controladoria e Contabilidade pela Universidade de São Paulo (USP-RP). Especialista em Gerenciamento de Micro e Pequenas Empresas pela Universidade Federal de Lavras (UFLA). Graduada em Ciências Contábeis pela Escola Superior de Ciências Contábeis e Administrativas de Ituiutaba (ESCCAI). Docente do curso de Ciências Contábeis na Universidade Federal de Uberlândia (UFU), campus Pontal. E-mail: marli.silva@ufu.br. Lattes: http://lattes.cnpq.br/6389622020342036. ORCID: https://orcid.org/0000-0002-0810-1127

Railene Oliveira Borges
Doutora em Educação pela Universidade de Uberaba (UNIUBE). Mestre em Administração pela Universidade Federal de Uberlândia (UFU). Graduada em Ciências Contábeis pela Universidade Federal de Uberlândia (UFU). Graduada em Ciências Econômicas pela Universidade Federal de Uberlândia (UFU). Docente do curso de Ciências Contábeis na Universidade Federal de Uberlândia (UFU), campus Pontal. E-mail: railene.borges@ufu.br. Lattes: http://lattes.cnpq.br/4792386776831706. ORCID: https://orcid.org/0000-0003-4138-2511

Nicole Rocha Carvalho
Graduada em Ciências Contábeis pela Universidade Federal de Uberlândia (UFU). E-mail: nicole.carvalho@ufu.br. Lattes: http://lattes.cnpq.br/7494861059548448 ORCID: https://orcid.org/0009-0002-4511-5736

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 22 March 2024. Proofread: 20 February 2025. New alterations: 14 March 2025. Accepted: 26 March 2025, by Dra. Edvalda Araújo Leal and Dr. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1 INTRODUCTION

Tax obligations deal with relationships between parties where there is an obligation required by law arising from an event involving an individual or legal entity with a public entity or tax authorities (Brasil, 2012). Legal entities and similar entities need to comply with a series of tax obligations, in accordance with their classification or form of taxation, which are segregated into main and accessory obligations, as set out in Article 113 of the National Tax Code (CTN).

According to §1 of Art. 113, CTN, the main obligation "arises with the occurrence of the triggering event, has as its object the payment of a tax or pecuniary penalty and is extinguished together with the credit arising from it". Similarly, §2 of Art. 113, CTN defines an accessory obligation as one that "arises from tax legislation and has as its object the positive or negative services provided for therein in the interests of tax collection or inspection". In general terms, the main obligations are taxes, fees and contributions, while the ancillary obligations include issuing tax documents, keeping accounting books and submitting declarations (Amaro, 2006; Coelho, 2012).

As taxes have an influence on companies and can have an impact on their future, as well as being one of the state's main sources of funds (Oliveira, 2013; Zuppani, 2023), there is a need to be familiar with tax obligations in order to manage them effectively so as to avoid errors and inappropriate conduct when preparing and submitting them. It is therefore necessary to prepare future professionals to perform better in the job market, especially when their professional practice requires them to deal with tax issues.

In the Resolution of the National Education Council (NEC) and the Chamber of Higher Education (CES), Resolution NEC/CES No. 1/2024, it was established that undergraduate courses in Accounting need to offer conditions to materialize the technical skills and abilities of students, including those related to the analysis of tax and social security implications. In addition to it, this Resolution instructs on the need to encourage students to develop knowledge in different areas such as law, administration, statistics and information technology, in order to meet the needs inherent in different business models. Some research has dealt with perception of students with regard to the training process and knowledge of the aspects inherent in tax obligations. For example, research by Nazário et al. (2008) showed that students at Higher Education Institutions (HEIs) in Federal District are interested in tax accounting, but do not believe it is an important path for the future. The study carried out by Barbosa et al. (2018) observed the existence of similar knowledge regarding the field of tax accounting, both when considering students still in undergraduate studies and when analyzing those who have already graduated. When conducting a survey of students on Accountancy course at the Federal University of Ceará, Alves et al. (2019) found that those students who do not carry out professional activities have no knowledge of accessory tax obligations, unlike those who carry out some kind of activity, especially if linked to the tax area. Therefore, it is worth highlighting what was evidenced as a reflection in the study of Correio et al. (2021), since the authors emphasize the need to discuss content that covers tax aspects during academic training, in order to enable graduates of Accounting courses to work in the tax area, in the national territory.

It can be seen from the studies mentioned that the perception of learning and knowledge about tax obligations during undergraduate studies indicates the need for further research to help validate the findings of previous studies. Considering the subjects investigated are usually students, adding new evidence focusing on accessory tax obligations, based on the perceptions of professors, broadens the scope of the discussions. Thus, the aim of this study was to analyze the perception of students and professors about the teaching and learning of content related to accessory tax obligations in the Accounting course at the Federal University of Uberlândia (UFU), Pontal campus.

This research contributes in theoretical terms by considering the possibility of revealing new insights into tax obligations, especially with regard to accessory tax obligations, observing the impacts within the scope of Accounting Sciences. As described in NEC/CES Resolution No. 1/2024, the theoretical teaching offered in classrooms needs to offer conditions for the development of the skills and abilities necessary for the professional performance of its students, which makes it essential to train professors and prepare courses to provide the necessary support to better meet market demands. This highlights the importance of understanding the views of students and professors in order to identify gaps that make it possible to improve the teaching strategies adopted in the classroom, especially with regard to aspects of practical requirements.

Accounting professionals need to know about ancillary tax obligations, since they need to have a broad and systemic vision in order to carry out their professional duties. As evidenced by the Brazilian Accounting Standard (NBC) PG 100 (R1), of November 21, 2019, it is important for accounting professionals to obtain and maintain the knowledge and skills that are necessary for the preparation of accounting and financial documents and reports, in order to meet the needs of their clients or employing organizations, considering current and up-to-date technical and professional standards, as well as the relevant legislation.

2 LITERATURE REVIEW

2.1 Accessory tax obligations

Tax obligations are segregated into main and accessory obligations, each of which has a different obligation from the other and specificities depending on the tax regime (Brazil, 2012). It should be noted that this research will be limited to the observation of accessory tax obligations. The purpose of ancillary tax obligations is to gather information so that the tax authorities can monitor, identify irregularities and illicit practices, and control fraud (Lizote & Mariot, 2012). There are different ancillary tax obligations required by each entity, depending on the tax regime. Chart 1 shows the ancillary tax obligations required of companies belonging to Simples Nacional, Lucro Presumido and Lucro Real tax regimes.

Chart 1 - Accessory tax obligations for each tax regime

Simples Nacional	Lucro Presumido	Lucro Real
Socioeconomic and Tax Information Statement	Digital Bookkeeping	Digital Accounting Bookkeeping
Annual Social Information Report	Tax Bookkeeping	Tax Accounting Bookkeeping
Invoice	Invoice	Nota Fiscal
FGTS and Social Security Information Collection Form	FGTS and Social Security Information Collection Form	FGTS and Social Security Information Collection Form
Withholding Income Tax Return	Withholding Income Tax Return	Withholding Income Tax Return
Reason book	General Register of Employed and Unemployed	General Register of Employed and Unemployed Persons
Daily Book	ICMS Information and Calculation Guide	ICMS Information and Calculation Form
Digital Bookkeeping System for Tax, Social Security and Labor Obligations	Electronic Services Declaration	Electronic Service Declaration
Simples Nacional Collection Document	Declaration of Federal Tax Debts	Declaration of Federal Tax Debts
Declaration of Tax Substitution, Aliquot Differential and Anticipation	ICMS and IPI Digital Tax Bookkeeping	ICMS and IPI Digital Tax Bookkeeping
-	Digital Tax Bookkeeping - EFD Contributions	Digital Tax Bookkeeping Contributions - EFD Contributions
-	Annual Social Information Report	Annual Social Information Report
-	Digital Bookkeeping System for Tax, Social Security and Labor Obligations	Real Profit Calculation Book
-	-	Digital Bookkeeping System for Tax, Social Security and Labor Obligations (Social Security and Labor Obligations (eSocial)

Sources: Prepared on the basis of CRCSC (2017) and Accounting Portal (2023).

As shown in Chart 1, companies that fall under the Simples Nacional tax regime, for example, are required to submit the DIRF, NF, FGTS Collection Form and GFIP, which are also mandatory for companies opting for Real Profit and Presumed Profit (CRCSC, 2017). In addition to the declarations required of companies opting for Simples Nacional, those taxed by Lucro Real and Lucro Presumido are still obliged to submit the DCTF, ECD, ECF and CAGED. Real Profit companies, for example, have the additional need to submit LALUR (CRCSC, 2017).

Accessory tax obligations are pre-established by law. Thus, failure to comply with them entails penalties for companies, such as fines of varying amounts depending on the type of taxpayer and based on the calendar year or fraction thereof, as well as the risk of their activities being suspended (Brasil, 2001). Thus, identifying what the obligations are and understanding the penalties arising from non-compliance should be part of the accounting professional's competencies and skills, and therefore content on the subject should be included in the curricula of undergraduate accounting courses.

2.2 The teaching of accessory tax obligations in the Accounting course

The Accounting course aims to provide the future accounting professional with knowledge, encompassing technical, administrative, economic and accounting issues in order to train a critical professional and a citizen capable of intervention (Laffin, 2015). Among other aspects, accounting professionals need to have the ability to meet market demands, keeping up with changes in the accounting area, with constant updates so that they can comply with obligations (Machado et al., 2019).

The need to discuss accessory tax obligations in the Accounting course has been addressed since the approval of Decree Law No. 7,988/1945. Among other aspects, the Decree dealt with the guidelines and provisions for future accounting professionals and established that accessory tax obligations should be covered in the fourth series of subjects within tax and fiscal legislation (Brasil, 1945).

Later, in the 2000s, the Ministry of Education established the National Curriculum Guidelines to guide the provision of undergraduate courses in Accounting Sciences, through NEC/CES Resolution 10/2004, later amended by NEC/CES Resolution 1/2024. As postulated by NEC/CES Resolution 1/2024, undergraduate courses in Accounting need to provide the conditions for students to be able to understand issues in the scientific, technical, social, environmental and political spheres related to accounting. In this way, the Resolution establishes the development of critical thinking, a systemic, holistic and humanistic vision, communication and writing skills, among other attributes, including recommending continuing training throughout professional life.

At a global level, different global entities, such as International Federation of Accountants (IFAC), International Accounting Standards Board (IASB), International Standards of Accounting and Reporting (ISAR), International Accounting Education Standards Board (IAESB), came to analyze and organize research and studies on accounting. From this research, as well as the partnership among different institutions and the United Nations Conference on Trade and Development (UNCTAD), the World Accounting Curriculum (WAC) was developed (Silva, 2009). WAC presents a curriculum project in which knowledge is separated into four modules, one of which covers issues relating to taxation. The modules are as follows: Organizational and Business Knowledge Module; Information Technology Module; Basic Accounting, Auditing, Taxation and Accounting-Related Knowledge Module; Accounting Electives Module (advanced), finance and related knowledge (UNCTAD, 2018).

The market expects accounting professionals to be able to give information firmly and clearly, to assist in decision-making and to be the main pivot for the company to succeed (Benetti & Hein, 2010). It is the role of higher education institutions to train professionals capable of meeting the demands of organizations, in order to develop students' competencies, including different knowledge, skills and attitudes (Santos et al., 2024). This is because, according to Benetti and Hein (2010), the market expects accounting professionals to be able to analyze, record and provide information with firmness and clarity, in order to help make decisions, as they are the main pivot for a company to succeed. So, when considering specific knowledge about tax accounting, the role of academic training is evident. However, as Pêgas (2022) states, in order for accounting professionals to obtain more in-depth and specialized knowledge, it is necessary to seek continuing education, combining it with dedication and determination.

2.3 Previous studies

Research has shown the importance of the accounting professional's knowledge and preparation in carrying out their activities, especially with regard to aspects related to tax obligations. Prado (2013), when carrying out research resulting from a bibliographical study, with the use of a case study with hypothetical calculations related to federal taxes, highlighted the role of the accountant. In general terms, the author pointed out that the accounting professional must take on a position of greater responsibility, bringing value in relation to the demand for understanding, interpretation, calculations and exploration of the best form of taxation, which ends up having an impact on business growth. The considerations made by Prado (2013) emphasize the need for tax accountants to act in a managerial capacity.

The research by Assis (2017) sought to analyze the tax understanding of company managers, pointing out that the majority admitted to not having discernment about tax obligations and their benefits. In addition to it, the importance of accounting professionals in relation to tax planning and helping companies fulfill their obligations to ensure their growth and competitiveness was verified.

In the study carried out by Barbosa et al. (2018), the aim was to compare the perceptions of incoming and outgoing Accounting students in relation to the tax burden in Brazil. To this end, the authors administered questionnaires to students from two campus from a public university in the country of Minas Gerais. The results show that graduating students have greater knowledge of the tax burden than beginners. This result, as the study points out, may be associated with the fact that the graduates have had more contact with the subject, since they have already studied subjects such as tax legislation and accounting.

With the aim of analyzing the aspects that influence the level of knowledge about accessory obligations, Alves et al. (2019) carried out an investigation with Accounting students at the Federal University of Ceará. The results showed that those students who already have some kind of work activity related to the tax area have a higher level of knowledge about accessory obligations, while those who only study have no knowledge on the subject. These considerations indicate that the content exposed in the classroom, without external practice, may not be enough to prepare students in terms of the knowledge expected of them.

By analyzing the content of the syllabuses and programs of subjects in the tax area of Brazilian Accounting courses, Correio et al. (2021) were able to observe that educational institutions do not always provide information about the syllabuses and programs of subjects in a clear manner. In general, the institutions analyzed have tax subjects that involve legislation and tax planning, and half of them mention the study of Simples Nacional and Lucro Presumido tax regimes.

Oliveira (2023) highlighted in his research the considerable percentage of taxes in relation to organizational costs in the manufacturing industry, as well as the impacts for organizations in sectors such as services, construction, public utilities and energy. This led the author to highlight the relevance of the tax area for accounting professionals, which seems to be marginally observed in teaching. The results of the research showed that the subject Tax Accounting is offered in only one period of the Accounting course, which, according to the perception of students on the course analyzed, offered by the Rural University of Rio de Janeiro (UFRRJ), is not enough to prepare them for the job market.

3 METHODOLOGICAL PROCEDURES

The research was classified as descriptive, as it aims to analyze the perception of students and professors about the teaching of content related to accessory tax obligations in the Accounting course at the Federal University of Uberlândia (UFU), Pontal Campus.Gil (2008) presents that descriptive research aims to describe the characteristics of a given population or to establish relationships among variables, covering the purpose explored by the research.

A survey carried out with the course coordinator in January 2023 revealed that 163 students were enrolled on the course, which is offered in the evening. On the same date, nine lecturers were identified, whose names, emails and telephone numbers are listed on the course's website at *link* http://www.faces.ufu.br/graduacao/ciencias-contabeis. This survey was necessary in order to conduct the field research with the students and professors of the course.

Data was collected through documentary research and questionnaires. The documentary research involved consulting the Pedagogical Project Course (PPC), dated 2007, as well as the subject sheets, which are also available on the course's website at the address mentioned above. The analysis of these documents was carried out during the month of April 2023 and consisted, in relation to the PPC, of reading to identify the subjects that included content related to tax obligations, as well as their period of offer in the curriculum matrix, and also information that would help to understand the process of training students and preparing them for the job market. The subject sheets identified the curricular content of each subject in greater depth and detail.

The questionnaires were administered using printed forms, distributed in person in the classrooms, in order to obtain a greater volume of responses. Two questionnaires were drawn up, one for students and the other for professors. It should be noted that the questionnaires were structured in accordance with ethical research criteria, which ensured that the identity of the respondents was preserved, as well as the use of the data collected for specific research purposes. The questionnaire was accompanied by a Free and Informed Consent Form, with information on the purpose of the research, as well as clarifications on voluntary participation, confidentiality of information and the guarantee that the data collected would only be used for academic purposes.

The questionnaire for students was divided into three blocks with a total of fifteen questions. The first block was aimed at characterizing the respondent. The second block covered knowledge of accessory tax obligations. And the third block dealt with the teaching of content related to accessory tax obligations. The questions were based on the study by Alves et al. (2019) and Bianchi et al. (2019). The statements in the study by Bianchi et al. (2019) were adapted, since in that study the statements relate to the subject of Auditing.

The questionnaire for professors was divided into two blocks with seventeen questions. The first block was aimed at characterizing the respondent and the second block comprised statements about teaching content related to accessory tax obligations. The questions included in this questionnaire, which were also adjusted, were based on those presented in the study by Bianchi et al. (2019), which indicates a similarity in the questionnaires applied to professors and students.

The questionnaires were administered in April and May 2023. In the end, 84 student responses were obtained, which represents around 51% of the students enrolled. It is worth noting that all nine of the course's lecturers answered the questionnaire. After collection, the data was tabulated in spreadsheets in *Microsoft Excel 2007* in order to facilitate the grouping of responses and analysis using descriptive statistics to conclude the results, including the presentation of relative values.

4 ANALYSIS OF RESULTS

4.1 Analysis of the Pedagogical Project

UFU Accounting Course, *Pontal campus*, was created in 2006 and offered by Faculdade de Ciências Integradas do Pontal (FACIP), now Faculdade de Administração, Ciências Contábeis, Engenharia de Produção e Serviço Social (FACES). The course has an annual intake, with 40 vacancies in the evening. The academic regime is semester-based, and the course is completed in 10 academic semesters [five years] (Facip, 2007). It should be noted the course was reformulated and a new Pedagogical Project was used in 2023. However, this was not analyzed in this research since, at the time of data collection, there were still no students who had completed at least one semester of the course under the new conditions.

When analyzing PPC, it can be seen that one of the existing principles is evaluation for changes and improvement in teaching work, with the aim of improving content and seeking updates in terms of what is expected and required of future professionals trained by the course (Facip, 2007). Then, we highlight the need for professors to be continuously qualified, as they need to keep up with existing developments in order to better prepare students.

PPC mentions the need to train students in professional, human and social terms (Facip, 2007). Thus, students are expected to be able, among other things, to understand several business issues at national and international level, as well as to develop ethical behavior, a critical and creative sense, and concern for the balance of the professional environment

(Facip, 2007). Given the competencies, skills and attitudes desired of the bachelor, the aim of the course mentioned in PPC is “to train graduates in the field of accounting, legally qualified to work in the various institutions that permeate social life where the presence of an accountant is required” (Facip, 2007, p. 15).

With regard to aspects related to tax obligations, an analysis of the Pedagogical Project allowed us to identify the presence of subjects whose syllabuses and programs contain content related to tax obligations in general. After identifying these subjects through a textual reading of PPC, the documentary analysis of these forms made it possible to map out the contents, verifying that they include, for example, taxation at source, tax collection, municipal taxes and contributions, among other subjects. Details of the flow of subjects, as well as the syllabuses that include tax aspects, are shown in Chart 2.

Chart 2 - Subjects comprising tax obligations and their syllabuses

Subject	Syllabus	Period in which it is offered
Commercial Legislation	General notions. Merchants or Entrepreneurs. The trade name. Commercial establishment. Entrepreneurs and consumer rights. General Theory of Corporate Law. Partnerships. Capital companies. Credit securities. Bankruptcy Law. Commercial Contracts.	4th period
Commercial Accounting	Commercial Companies. Incorporation of commercial companies. Chart of Accounts. Special operations. Operations with Subsidiaries. Payroll. Financial Operations.	5th period
Tax Legislation	Introduction. Taxation. Sources of Tax Law. Constitutional Principles of Tax Law. Tax Immunities. Tax Jurisdiction. Tax Norm and Tax Incidence Hypothesis. Tax Obligation. Tax Liability. Tax credit assessment. Administrative Tax Procedure. National Taxes.	5th period
Tax Accounting	Corporate tax legislation. Taxation at source. Mandatory monthly payment (carnê-leão). COFINS AND PIS/PASEP. Tax on industrialized products (IPI). State taxes. Municipal taxes. Contributions. Tax research possibilities.	6th period
Compulsory Supervised Internship: Accounting Laboratory I	Computerized business systems. Accounting organization and control activities. Structuring and accounting records.	9th period
Compulsory Supervised Internship: Accounting Laboratory II	Reconciliation and evaluation of accounting information. Calculation of results. Preparation and analysis of financial statements.	10th period

Source: Based on FACIP (2007).

Looking at Chart 2, it can be seen that content related to tax issues begins to be discussed in the course from the fourth term onwards. The subject Tax Legislation, whose syllabus shows content comprising aspects of tax obligations, and the subject Tax Accounting, which discusses taxation, are those that contain more direct content on tax obligations. It should be noted that a textual reading of the course sheets for these subjects showed that each title of the syllabus constitutes a unit of syllabus content, the breakdown of which makes it possible to identify the subject proposed in each of them.

Still regarding the information in Chart 2, it is worth noting in the Accounting Laboratory courses, in which mandatory supervised internship is offered, the content is taught in a practical manner, including the issuance, with hypothetical values, of State Collection Document (DAE), Service Time Guarantee Fund Collection Guide and Social Security Information (GFIP), Social Security Guide (GPS) and Federal Revenue Collection Document (DARF) guides related to taxes such as PIS, COFINS, Income Tax Withheld at Source (IRRF), and Income Tax and Social Contribution on Profit, which results in knowledge, in addition to skills and abilities as recommended by the national curriculum guidelines. Furthermore, in both courses, students complete the Real Profit Calculation Book (LALUR) and perform tax calculations, which provides greater involvement in relation to aspects related to tax obligations.

4.2 Characterization of respondents

Information on the profile and characteristics of the respondents was collected through a questionnaire, the results of which are shown in Table 1. First, information related to the profile of the students is presented, including aspects such as gender, age, period in which they were enrolled in the course, employment status and area of activity, in case they have an employment relationship. The information, presented in relative values, characterizes a total of 84 students who responded to the instrument.

RMC

Table - 1 Characterization of responding students

Gender				
Female	60.71%		Male	38.09%
Non-Binary	0%		Prefer not to answer	1.20%
Age				
Under 21	28.58%		36 to 40 years	5.95%
21 to 25 years	42.85%		41 to 45 years	1.19%
26 to 30 years	10.71%		46 to 50 years	2.39%
31 to 35 years	7.14%		Over 50 years	1.19%
Enrolled Period				
1st Period	0%		6 º Período	17.86%
2nd Period	29.76%		7 º Período	2.38%
3rd Period	0%		8 º Período	16.67%
4th Period	22.62%		9 º Período	2.38%
5th Period	2.38%		10 º Período	5.95%
Employment Situation			**Area of Activity**	
Employee	69.04%		Administrative	35.72%
Intern	5.95%		Commercial/Services	25.00%
Self-employed	4.78%		Accounting	16.67%
Unemployed	20.23%		I'm not working	20.23%
			Other	2.38%

Source: Research data (2023).

When analyzing Table 1, it can be observed that the majority of the responding students, totaling 60.71%, identify themselves as female. It was found that 42.85% of the students are in the age range that includes 21 and 25 years. Regarding the period enrolled, 29.76% of the students are taking courses in the 2nd period and 22.62% are taking the 4th period, these being the periods attended by the majority of the respondents. When analyzing the employment situation of the students, it was found that 69.04% have an employment relationship as an employee, followed by 5.95% who work as interns, in addition to 4.78% who work independently. It is worth noting that 35.72% mentioned working in the administrative area, 25.00% work in the commercial/services area and 16.67% in the accounting area. It is considered that the fact that most respondents are in the initial periods of the course influenced the percentage of students working in the accounting area, given the requirement to have an active registration with the Federal Accounting Council to work in this area, both in companies and in accounting offices. In Table 2, similar procedures were used to present the characterization of the responding professors.

Table 2 - Characterization of responding professors

Gênero				
Female	44.44%		Masculine	55.56%
Idade				
Under 30 years	0%		40 to 50 years	22.22%
30 to 40 years	44.44%		Over 50 years	33.34%

Level of Education			Highest Qualification Course	
Graduation	0%		Accounting	55.56%
Specialization	0%		Education	33.33%
Master's	22.22%		Economics	11.11%
Doctorate	77.78%		Administration	0%
			Direito	0%
			Outro	0%
Time of Experience in Teaching				
Less than 10 years	11.11%		20 to 30 years	22.22%
10 to 20 years	55.56%		Over 30 years	11.11%

Source: Research data (2023).

It was found that 55.56% of the course's professors identify as male, while 44.44% are female. Among the responding professors, 44.44% are from 30 and 40 years old. Regarding the level of education, 77.78% of the professors have a doctorate and 22.22% have a master's degree. Regarding the qualifications of these professors, it was found that 55.56% have the highest qualification in the area of Accounting Sciences, followed by 33.33% with training in the area of Education. It was also observed that 55.56% of the professors have been working in teaching for 10 to 20 years.

4.2 Knowledge about additional tax obligations

The second part of the analysis includes questions that address students' knowledge about additional tax obligations. The first step was to understand students' opinions regarding their preparation for and contact with tax obligations, whether in college or in their professional practice. The results can be seen in Table 3.

Table 3 - Opinions on students' preparation and contact with tax obligations

Questions	Yes	No
Do you consider yourself prepared to work with tax obligations?	29.76%	70.24%
In addition to the content offered at college, have you already searched for/researched materials related to additional obligations through other means (courses, lectures, videos, etc.)?	51.19%	48.81%
In your professional practice, do you have direct or indirect contact with anything related to ancillary obligations?	32.14%	67.86%

Source: Research data (2023).

When analyzing Table 3, it can be seen that 29.76% of students consider themselves prepared to work with tax obligations. Therefore, the number (70.24%) of students who do not consider themselves prepared is significant, which denotes the lack of knowledge, skills and abilities for this purpose. However, there is an interest in learning more about the topic of accessory tax obligations, since the majority, 51.19%, of students sought content beyond that offered in the teaching activities offered by the course or college. It is also noteworthy that 67.86% of students have no contact with these obligations in their professional activities, which can be justified by the fact that the majority of the responding students work in administrative, commercial or service positions. Furthermore, it is worth noting that 52.38% of respondents were in the 2nd or 4th semester of the course, that is, they still had no contact with subjects that address in greater depth content related to the topic involving concepts about taxes. This observation reinforces what was stated by Barbosa et al. (2018), who identified that students in the final stages of their undergraduate degree in Accounting Sciences have more knowledge about tax issues when compared to those in earlier periods of the course.

Since there are different additional tax obligations required by each entity, in accordance with the tax regime, in order to better understand the students' knowledge about additional tax obligations, respondents were asked to indicate whether or not they were aware of them, as well as whether they prepared or executed them in their work activities. Table 4 summarizes the responses.

Table 4 - Students' knowledge of additional tax obligations

Additional Tax Obligations	Do you know	Don't know	Develops/ Executes
Income Tax Withheld at Source Declaration (DIRF)	80.95%	11.90%	7.15%
Electronic Invoice (NFE)	61.90%	10.71%	27.38%
FGTS Receipt and Social Security Information Guide (GFIP)	59.52%	30.95%	28.57%
Social Security Guide (GPS)	58.33%	30.95%	10.71%
E-social	52.38%	38.09%	9.52%
ICMS and IPI Digital Tax Recording (EFD ICMS-IPI)	42.85%	52.38%	4.76%
Annual Declaration for CNPJ MEI (DASN/SIMEI)	40.47%	47.61%	11.90%
Declaration of Federal Tax Debts (DCTF)	35.71%	60.71%	3.57%
Real Profit Assessment Book (LALUR)	29.76%	69.04%	3.57%
Fiscal Accounting Records (ECF)	28.57%	66.67%	4.76%
Annual Social Information Report (RAIS)	25.00%	71.42%	3.57%
Digital Accounting Records (ECD)	25.00%	70.23%	4.76%
Digital Tax Recording Contributions (EFD Contributions)	20.23%	77.38%	2.38%
Others: DIRPJ	1.19%	97.62%	1.19%

Source: Research data (2023).

Table 4 shows that among the obligations, the ones most familiar to students are the DIRF (80.95%), the NFE (61.90%) and the GFIP (59.52%). On the other hand, the least familiar are the EFD Contributions (20.23%) and the Corporate Income Tax Declaration (DIRPJ) (1.19%). Although the DIRF is the accessory obligation with which students are most familiar, it is not the obligation with the highest percentage of declared knowledge in terms of preparation or execution. It is noteworthy 28.57% of the students indicated that they prepare or have already prepared the GFIP and 27.38% mentioned the preparation of NFE. It is worth mentioning that the lack of knowledge about several of the accounting statements may be related to the fact that most respondents are in the early stages of the course and, as already mentioned, have not yet had the opportunity to study or discuss content related to tax issues. Furthermore, as already shown, 16.67% work in the accounting area, which may justify the fact that they have not prepared or executed some of the ancillary obligations, especially those related to corporate income taxes (DIRPJ) or social security issues.

Regarding the knowledge of professors about ancillary tax obligations, Table 5 describes this data, as well as showing whether they teach or have taught any discipline that has content related to the topic.

Table 5 - Knowledge and preparation of professors regarding tax obligations

Part A – Acting in the practice of tax obligations		
	Yes	**No**
Have you ever worked with tax obligations, either in teaching or in other professional experiences?	55.56%	4.,44%
If so, what was your experience in the field of tax obligations?		
Accounting Office	33.34%	
Income Tax	11.11%	
Teaches Tax Law classes	11.11%	
	Yes	**No**
If not, If you were asked to teach a subject related to additional obligations, would you feel qualified?	44.44%	55.56%

Part B – Subjects with content related to additional tax obligations		
	Yes	**No**
Do you teach any disciplines that deal with content related to additional tax obligations?	22.22%	77.78%
If yes, which discipline(s)?		
Commercial Accounting	11.11%	
Commercial Accounting		
Accounting Lab 1	11,11%	
Accounting Lab 2		
If you haven't [given any], do you believe that any of the subjects you teach in the course could be worked on in a way that includes some type of subject related to additional tax obligations?	44.44%	55.56%

Source: Research data (2023).

As can be seen by analyzing Table 5, although 55.56% of the professors mentioned having some practical experience in relation to tax obligations, they do not feel sufficiently qualified to teach subjects related to such obligations. Among the professors who do not teach any subject that addresses additional tax obligations, 55.56% do not believe that the course subjects could be worked on in a way that includes issues related to the obligations, while 44.44% believe that the subject Mandatory Supervised Internship - Accounting Laboratory I and II and extra courses have a greater impact on teaching this content.

4.3 Teaching content related to additional tax obligations

The third part of the analysis aimed to verify how the course in question introduces and exposes to students content related to tax obligations. In their answers to the initial questions, the respondents could select more than one option. Additionally, we also sought to verify their opinions about the different teaching strategies that the course has used to introduce and offer discussion of content related to accessory tax obligations. Opinions regarding satisfaction and relevance of the teaching of accessory tax obligations were also identified, with the intention of also capturing possible recommendations for improving teaching. Table 6 presents, in decreasing order, the students' perception about the offering, by the Accounting Sciences course, of content related to accessory tax obligations.

Table 6 - Students' perception of content related to ancillary tax obligations

Which subject(s) do you believe work best with content involving ancillary tax obligations?	
Tax Accounting	67.85%
Tax Legislation	32.14%
Commercial Accounting	20.23%
Compulsory Supervised Internship - Accounting Laboratory I	16.67%
Compulsory Supervised Internship - Accounting Laboratory II	16.67%
In what way do you perceive that Accounting course has offered content related to accessory tax obligations?	
Lectures	73,80%
Expository classes	33,34%
Classroom discussions	29,76%
Seminars	22,61%
Solving Exercises	21,42%
Case Studies	11,90%
Simulations	8,33%
Abstracts	4,76%

Source: Research data (2023).

In terms of subjects, the students believe they work best with content involving accessory tax obligations, Tax Accounting (67.85%), Tax Legislation (32.14%) and Commercial Accounting (20.23%). The students also commented on the complementation of theory with practice, mentioning they perceive content related to accessory tax obligations to be presented only in the final periods of the course.

The analysis in Table 6 also made it possible to identify 73.80% of the students believe the Accounting course offers content related to accessory tax obligations, notably through lectures, followed by 33.34% who believe that content is included and offered in lectures, while 29.76% cited discussions held in the classroom. Along these lines, one of the students pointed out he believes that "more extra courses should be offered simulating practice and within the subjects I would like to have more contact with programs and websites". Table 7 shows the levels of satisfaction and relevance attributed by the students in relation to the teaching of accessory tax obligations in the course.

Table 7 - Students' perception of the satisfaction and relevance of teaching accessory tax obligations

With regard to the content of the subjects that cover the topic of accessory obligations, you..:	
I don't know / I'd rather not say.	33.33%
I consider it satisfactory, but for a basic understanding of the subject.	29.76%
I consider it insufficient and would like to have more content on the subject.	22.61%
I consider it fully satisfactory.	14.28%
I consider it insufficient, but I would like to have more content on the subject.	0.00%
Do you believe that the course offers sufficient content on accessory obligations to perform the necessary functions required by the job market?	
Yes, I think that's what's expected for the job market.	35,71%
I think it's not enough and I'm worried about the job market.	34,52%
I don't know/I prefer not to give an opinion.	19,04%
Yes, I think it's more than enough for the job market.	14,28%
I don't think it's enough, but I'm not worried about the job market.	3,57%
How do you rate the relevance of teaching accessory obligations in your academic training?	
Very relevant to qualify me as a well-trained professional.	65,47%
Very relevant, as I work/intend to work in the area that includes accessory obligations.	22,61%
Not very relevant, just to complement general knowledge.	8,33%
It's not relevant, as I won't be working in accounting.	3,57%
It's not relevant, as I won't be working in the area of accessory obligations.	0,00%

Source: Research data (2023).

Table 7 shows 33.33% of students don't know or prefer not to give an opinion on the content of the subjects that cover accessory tax obligations, another 29.76% consider the content to be satisfactory at a basic level and 22.61% believe the content is insufficient and the course needs to work better on content related to these obligations. Considering the students who preferred not to give an opinion, added to those who consider the content to be insufficient, they are the majority, in a complementary way, we asked whether the course's offer of accessory obligations is sufficient for the performance of the necessary functions required by the job market. The responses show 35.71% of the students believe the course offers sufficient content related to accessory tax obligations to meet the expectations of the job market, while 34.52% believe the content is insufficient, as they are concerned about the demands of the job market. Once again, the answers from the majority of respondents indicate that recommendations for improving the teaching of this subject could be raised in the course.

It is noteworthy that the subjects do not always have a clear syllabus on aspects related to the tax area, in addition to the fact that some content is covered in a simplified way, taking into account the time and objectives of the subject and the course. This evidence corroborates the findings of Correio et al. (2021), who also note that the content is not always clearly explained. This lack of clarity can mean that students do not adequately understand what is being presented, and so the teaching of accessory tax obligations does not result in the acquisition of knowledge, or competences and skills, as determined by the curricular guidelines for the course.

Although the previous analysis showed the majority of students consider the course's provision of content on the subject to be insufficient, and the knowledge acquired is insufficient for professional practice, the perception of the relevance of teaching was ratified by the majority of respondents. With regard to the relevance attributed to the teaching of accessory tax obligations in academic training, 65.47% of the students considered it to be very relevant for professional qualification, while a further 22.61% of the students believed it to be very relevant as a result of their intended professional practice. Only 8.33% of the students consider the teaching of accessory tax obligations is of little relevance, serving only to complement general knowledge and 3.57% believe it is not relevant, since they do not intend to work in the accounting area.

In order to complement the discussion about the teaching of content related to ancillary tax obligations, a similar question was put to the lecturers about which subjects in the course they consider to be the most suitable for offering content related to ancillary tax obligations, as well as the strategies commonly used in the course to include and offer such content. It should be noted that for some questions, lecturers could select more than one alternative. The results for this information are shown in Table 8.

Table 8 - Professors' perception of content related to ancillary tax obligations

Which subject(s) in the course do you believe are the most suitable for offering content on the subject of accessory tax obligations?	
Tax Accounting	77.77%
Compulsory Supervised Internship - Accounting Laboratory II	55.55%
Compulsory Supervised Internship - Accounting Laboratory I	44.44%
Commercial Accounting	22.22%
Tax legislation	11.11%
Advanced Accounting	11.11%
Introductory Accounting	11.11%
Intermediate Accounting	11.11%
How do you think the Accounting course has offered content related to accessory tax obligations?	
Lectures	77.77%
Lectures	66.66%
Solving Exercises	55.55%
Classroom discussions	33.33%
Case studies	22.22%
Seminars	0.00%
Seminars	0,00%
Abstracts	0,00%

Source: Research data (2023).

Exploring the data in Table 8, we see opinions converging with those of the students, both in terms of the subjects that best explain the subject and the teaching strategies used. Thus, Tax Accounting (77.77%) prevails as one of the subjects most recommended for offering content related to accessory tax obligations. Like the students, the lecturers emphasized the content related to ancillary tax obligations is offered mainly through lectures and talks.

As for the opinions regarding the satisfaction and relevance of teaching accessory tax obligations, Table 9 shows the professors' considerations for teaching them.

Table 9 - Professors' perception of the satisfaction and relevance of teaching accessory tax obligations

In relation to the content(s) of the subjects that cover the topic of accessory obligations, you..:	
I consider it satisfactory, but for a basic understanding of the subject.	55,55%
I don't know / I'd rather not say.	33,34%
I consider it insufficient and would like to have more content on the subject.	11,12%
I consider it insufficient, but I would like to have more content on the subject.	0,00%

I consider it fully satisfactory.	0,00%
Do you believe that the course offers sufficient content on accessory obligations to perform the necessary functions required by the job market?	
Yes, I think that's what's expected for the job market.	33,33%
I think it's insufficient and I'm worried about the job market.	33,33%
Don't know/Prefer not to give an opinion.	33,33%
I consider it insufficient, but I'm not worried about the job market.	0,00%
Yes, I think it's more than enough for the job market.	0,00%
How do you rate the relevance of teaching accessory obligations for academic training?	
Very relevant for qualifying students as well-trained professionals.	44,44%
Very relevant, as students may work in the area of accessory obligations.	44,44%
Not very relevant, just to supplement general knowledge.	11,12%
Not relevant, as students may not even work in the area of accessory obligations.	0,00%
Not relevant, as students may not even work in the accounting area.	0,00%

Source: Research data (2023).

The analysis of Table 9 shows 55.55% of the lecturers believe the content of the subjects on accessory tax obligations in their unit's Accounting course is satisfactory for a basic understanding. In fact, 33.33% of professors believe the course offers sufficient content for what is expected by the job market. On the other hand, another 33.33% believe the course offers insufficient content and are concerned about the job market. As for the relevance of teaching accessory tax obligations, 44.44% of lecturers classify it as very relevant, either for students to become trained or to be able to work in an area that requires knowledge of the subject. In the analyses carried out, it is possible to compare that the results of this study are similar to the results found in the study by Nazário et al. (2018), which demonstrate a relationship of interest on the part of students in expanding their knowledge of tax obligations. In addition to it, the results of this study reinforce the need to re-evaluate the strategies used to introduce, discuss and consequently teach the subject of tax obligations in the Accounting course, considering that students' perception of what is studied in the classroom is not sufficient for their training as future accountants, as was also evidenced in the study by Alves et al. (2019). The results shown here reinforce the importance of improving the supply of content that helps with the necessary understanding of tax obligations and the different tax aspects. Educational institutions need to provide the conditions for future professionals to be able to meet the demands of the market, without disregarding the need to seek extracurricular and continuous knowledge, especially in the face of the changes taking place in the tax sphere, such as the recent tax reform proposed by the government. As shown in Moreno's research (2022), the tax reform is based on the principle of providing a simplified National Tax System, which may take a long time to happen, in addition to generating impacts related to the increased demands on accounting professionals and the need to update their knowledge.

5 FINAL CONSIDERATIONS

The aim of this study was to analyze the perception of students and professors about the teaching and learning of content related to accessory tax obligations in the Accounting course at the Federal University of Uberlândia (UFU), Pontal campus. The results showed the majority of students taking part in this research do not consider themselves prepared to work with accessory tax obligations, and even those who are already in the job market do not work directly or indirectly with such obligations. Likewise, more than half of the professors also mentioned that, if asked, they would not feel qualified to teach a subject whose syllabus included issues involving accessory tax obligations.

With regard to the teaching of the subject of accessory tax obligations, both students and professors pointed out that the Accounting course at UFU, Pontal campus, offers subjects with satisfactory content, but only for basic attention to issues relating to accessory tax obligations, which leads to indications that skills and abilities to deal with the subject are not fully developed. These indications are confirmed by the divergence in relation to the sufficiency of the content on the subject, since students and professors consider it to be sufficient or insufficient, showing concern about the job market. In addition to it, students and lecturers see the teaching of ancillary obligations as very relevant in the academic training process, considering the need for professional training on the subject. It is noteworthy that, in the course, lectures and expository classes are the main teaching strategies used to work on content which includes accessory tax obligations.

The findings of this research contribute to research on the topic and corroborate previous studies, especially regarding the need to expand discussions on content related to tax obligations in the teaching and training process of accounting graduates. Thus, it is clear there is a need to reevaluate the teaching offered and the strategies for improvements and possible changes in the course curriculum. Although the findings are restricted to the course investigated, they can be used by professors, coordinators and managers of educational institutions to review the planning process of external activities, complementary activities, lectures and mini-courses offered to students. It is suggested alternative methods and strategies are used, such as simulations and case studies, as well as seeking to train professors so that they can improve their knowledge on the topic, which will allow them to have greater mastery in teaching subjects and extracurricular activities..

The research has limitations, notably in view of the difficulty in obtaining responses from students, something that impacts the results due to the percentage of responses. For future research, it is suggested to expand the collection to include students of the Accounting Sciences course at UFU in different campuses, as well as to analyze other educational institutions, including considering differences in curricula and teaching methods.

Research with postgraduate students and faculty can also be conducted, considering the possibility of verifying, for example, whether and how stricto sensu and lato sensu programs have included in their curricula and taught content related to tax aspects. It is recommended developed studies which use other research techniques and methods, such as qualitative research with data collection through interviews, in order to obtain greater depth of analysis in relation to the evidence collected.

REFERENCES

Alves, F. I. A. B., Carvalho, B. P., Souza, J. L., & Farias, I. F. (2019). Accessory obligations: level of knowledge of accounting students at the Federal University of Ceará. *Observatorio de la Economía Latinoamericana*, p. 01-17. Retrieved July 11, 2022, from https://www.eumed.net/rev/oel/2019/02/obrigacoes-acessorias.html.

Amaro, L. (2006). *Brazilian Tax Law (12th ed.). São Paulo: Saraiva*.

Assis, W. M. B. (2017). Tax planning: a study on the role of the accountant in the view of managers of micro and small companies. *Revista de Empreendedorismo e Gestão de Micro e Pequenas Empresas, 2*(1), 162-176. Retrieved May 30, 2023, from https://www.revistas.editoraenterprising.net/index.php/regmpe/article/view/139.

Barbosa, I., Ávila, L. A. C., & Malaquias, R. F. (2018). The perception of Accounting undergraduate students about the tax burden in Brazil. *Revista de Contabilidade da UFBA, 12*(1), 31-53. DOI: https://doi.org/10.9771/rc-ufba.v12i1.21771

Benetti, J. E., & Hein, N. (2010). Profile of the professionals responsible for accounting services companies in Chapecó/SC and the regressions and canonical correlations between activities. *Revista Catarinense da Ciência Contábil, 9*(25), 65-81. DOI: http://dx.doi.org/10.16930/2237-7662/rccc.v9n25p65-81

Bianchi, M., Werlang, J. D., Venturini, L. D. B., & Machado, V. N. (2019). Perception of students of the Accounting Sciences course and the Specialization in Expertise and Auditing about teaching and the job market in Auditing. *Revista Ambiente Contábil, 11*(2), 266-285. DOI: http://dx.doi.org/10.21680/2176-9036.2019v11n2ID16529

Brazil. Chamber of Deputies (1945). Decree-Law n. 7.988, of September 22, 1945. Official Gazette of the Union, Rio De Janeiro. Retrieved December 20, 2022, from https://www2.camara.leg.br/legin/fed/declei/1940-1949/decreto-lei-7988-22-setembro--1945-417334-publicacaooriginal-1-pe.html.

Brazil (2012). National Tax Code. 2. ed. - Brasília: Senado Federal, Subsecretaria de Edições Técnicas. Retrieved April 25, 2022, from https://www2.senado.leg.br/bdsf/bitstream/handle/id/496301/000958177.pdf.

Brazil (2001). Provisional Measure n. 2.158-35, of August 24, 2001. Official Gazette Federative Republic of Brazil, Civil House, Brasília, DF. Retrieved January 8, 2023, from https://www.planalto.gov.br/ccivil_03/mpv/2158-35.htm.

Coelho, S. C. N. (2012). *Course in Brazilian Tax Law (12s ed.). São Paulo: Forense.*

Correio, U. B. dos S., Correio, R. D., Santos, F. de A., & Securato, J. R. (2021). The content of tax subjects in Accounting courses in Brazil: a study on the approach to the simple national and presumed profit. *Razão Contábil e Finanças, 12*(2), 01-14.

Faculty of Integrated Sciences of Pontal - FACIP (2007). Pedagogical Project for the Undergraduate Course in Accounting Sciences. 2007. Retrieved December 10, 2022, from http://www.faces.ufu.br/system/files/conteudo/cc_projetopedagogico.pdf.

Federal Accounting Council - CFC. (2019). Brazilian Accounting Standard, NBC PG 100 (R1), of November 21, 2019. Retrieved December 15, 2023, from https://www1.cfc.org.br/sisweb/SRE/docs/NBCPG100(R1).pdf.

Gil, A. C. (2008). *How to design research projects (3rd ed.)*. São Paulo: Atlas.

Laffin, M. (2015). Graduation in Accounting Sciences - the emphasis on competencies: contributions to the debate. *Education Policy Analysis Archives*, 23, 78-78. DOI: https://doi.org/10.14507/epaa.v23.1844

Lizote, S. A., & Mariot, D. M. (2012). The structure of the Public Digital Structuring System (SPED): a study of the new obligations. *Navus - Journal of Management and Technology, 2*(2), 17-25. Retrieved January 6, 2023, from https://www.redalyc.org/pdf/3504/350450810002.pdf

Machado, D., Rosa, T., & Martins, Z. B. (2019). The labor market as perceived by accounting professionals. *Revista de Contabilidade da UFBA, 13*(1), 84-104. DOI: https://doi.org/10.9771/rc-ufba.v13i1.27922

Nazário, N. S., Mendes, P. C. M., & Aquino, D. R. B. (2008). Students' perception of the importance of Tax Accounting knowledge in higher education institutions in the Federal District: an empirical study. *Revista Universo Contábil, 4*(3), 64-81. DOI: http://dx.doi.org/10.4270/ruc.20084.

National Education Council - CNE. (2024). Resolution No. 1 of March 27, 2024. Establishes the National Curriculum Guidelines for the Bachelor's Degree in Accounting. Federal Official Gazette, Brasília, DF. Retrieved March 5, 2025, from http://portal.mec.gov.br/docman/marco-2024/257031-rces001-24/file.

Oliveira, G. P. (2013). *Contabilidade Tributária* (4a ed.). São Paulo: Editora Saraiva.

Oliveira, M. S. (2023). Tax accounting and the job market. *Management and Secretarial Journal (Management and Administrative Professional Review)*, *14*(1), 110-132. DOI: https://doi.org/10.7769/gesec.v14i1.1504

Pêgas, P. H. (2022). *Manual de contabilidade tributária (10th ed.).* Barueri: Atlas.

Portal da Contabilidade. (2023). See the monthly and annual obligations of Simples Nacional. Retrieved May 30, 2023, from https://portaldacontabilidade.clmcontroller.com.br/veja-as-obrigacoes-mensais-e-anuais-do-simples-nacional/

Prado, E. C. P. (2013). The role and performance of the tax accountant. *Revista de Ciências Gerenciais, 17*(26), 131-143. Retrieved May 30, 2023, from https://silo.tips/download/o-papel-e-a-atuaao-do-contador-tributario#.

Regional Accounting Council of Santa Catarina - CRCSC. (2017). Check out the main accessory obligations for Real Profit and Presumed Profit. Retrieved December 20, 2022, from https://www.crcsc.org.br/noticia/view/5897

Santos, N. G. M., Tarocco Filho, J., & Santos, C. K. S. (2024). Competencies required of accountants: a study of the perception of accounting firms and accounting students in Monte Carmelo-MG. *Cadernos da FUCAMP*, *27*, 165-184.

Silva, E. P. (2009). *The impact of the adoption of international accounting standards on higher education in Accounting, according to the perception of teachers* (Master's thesis in Management Control). Postgraduate Program in Accounting Sciences*, Rio de Janeiro State University, Rio de Janeiro. Retrieved June 1, 2023, from* http://www.bdtd.uerj.br/handle/1/8124

United Nations Conference on Trade and Development - UNCTAD. (2011). *Model Accounting Curriculum (Currículo Mundial)*. Recuperado em 02 de junho de 2023, de https://unctad.org/en/PublicationsLibrary/diaemisc2011d1_en.pdf.

Zuppani, V. C. (2023). Brazilian taxation and its influence on the cost of Brazil and the promotion of business: how legal uncertainty and the complexity of the Brazilian tax system slow down the country's growth (Final Course Paper). Pontifical Catholic University of Goiás, Goiânia. Retrieved March 01, 2025, from https://repositorio.pucgoias.edu.br/jspui/handle/123456789/6356.

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 2, Pages 26 - 40, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1576

CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

MANAGERIAL ARTIFACTS AND INNOVATION: AN INVESTIGATION AT THE GOIANIA HIPPIE FAIR

ARTEFATOS GERENCIAIS E INOVAÇÃO: UMA INVESTIGAÇÃO NA FEIRA HIPPIE DE GOIÂNIA

This article was accepted and presented at the XIV Congresso Nacional de Administração e Contabilidade – Adcont 2023, held from October 23 to 25, 2025, remotely

ABSTRACT
The Goiania Hippie Fair holds significant historical and cultural heritage value for this Brazilian city, driving the entire productive chain and generating a substantial impact on the local economy. This study aims to investigate whether a positive relationship exists between the use of managerial artifacts and the degree of innovation among vendors at the Goiania Hippie Fair. The research adopts an exploratory approach with a quantitative methodology, utilizing a physical questionnaire administered to the vendors. Descriptive statistics and Pearson correlation analysis were applied to the collected data. The findings reveal a positive relationship between the use of managerial artifacts and the degree of innovation among the fair's vendors, identifying them as second-order factors. Additionally, the study shows that increasing the use of first-order factors – heritage and results artifacts and platform innovation – would trigger the adoption of several other factors by the vendors. Furthermore, the research examines the characterization of the vendors at the Goiania Hippie Fair and describes their main managerial and innovative practices. These results can serve as a valuable source of information to guide future practices and training, aiming to support their development within these contexts.

Keywords: managerial artifacts; innovation; open-air market; Goiania Hippie Fair; micro and small companies.

RESUMO
A Feira Hippie de Goiânia possui um valor de patrimônio histórico-cultural para a cidade, movimentando toda a cadeia produtiva e gerando um grande impacto na economia local. O objetivo geral da pesquisa é verificar se há um relacionamento positivo entre o uso dos artefatos gerenciais e o grau de inovação por parte dos feirantes da Feira Hippie de Goiânia. É um estudo exploratório com abordagem quantitativa em que o método de coleta de dados foi um questionário físico aplicado aos feirantes da Feira Hippie de Goiânia. Foram aplicados os testes de estatística descritiva e análise de correlação de Person nos dados coletados. Os resultados demonstram que existe um relacionamento positivo entre o uso dos artefatos gerenciais e o grau de inovação por parte dos feirantes da Feira Hippie de Goiânia, sendo fatores de segunda ordem. Além disso, foi possível verificar que, ao aumentar o uso dos fatores de primeira ordem artefatos patrimoniais e de resultados e inovação de plataforma, desencadearia na elevação do uso de vários outros fatores pelos feirantes. Além do mais, a pesquisa investiga a caracterização dos feirantes da Feira Hippie, bem como descreve suas principais práticas administrativas e inovadoras. Esses resultados podem servir como fonte de informação para orientar práticas e treinamentos futuros, visando auxiliar sua evolução dentro desses contextos.

Palavras-chave: artefatos gerencias; inovação; feira livre; Feira Hippie de Goiânia; micro e pequenas empresas.

Juliano Lima Soares
Pós-Doutor em Ciências Contábeis e Atuariais pela Pontifícia Universidade Católica de São Paulo (PUC-SP). Doutor em Administração de Empresas pela Universidade Positivo (UP) com período sanduíche no William James Research Center - ISPA - Portugal. Mestre em Administração de Empresas pela Instituição de Ensino de Minas Gerais -SIEMG/FEAD. Especialização em Controladoria pela Faculdade de Sinop (FASIPE). Graduado em Ciências Contábeis pela Universidade do Estado de Mato Grosso - UNEMAT. Graduado em Antropologia pelo Centro Universitário Leonardo da Vinci. Coordenador do Laboratório de Contabilidade, Inovação e Sociedade, Editor chefe da Revista Contabilidade e Inovação da UFG. Docente permanente no Programa de Pós-Graduação em Administração (PPGADM/UFG). Pesquisador e professor na Faculdade de Administração, Ciências Contábeis e Ciências Econômicas - FACE da Universidade Federal de Goiás (UFG). Editor associado na Revista Contabilidade, Gestão e Governança (CGG). E-mail: julianolimaso

Stela Ribeiro de Sant'Ana
Graduada em Ciências Contábeis pela Universidade Federal de Goiás (UFG). Consultora em controladoria na Alianzo. E-mail: sstela150@gmail.com. https://orcid.org/0009-0008-6261-598X. http://lattes.cnpq.br/3233543371557980

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 06 December 2023. Proofread: 05 May 2025. New alterations: 26 September 2025. Accepted: 06 November 2025, by Dra. Lara Cristina Francisco de Almeida Fehr and Dr. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1. INTRODUCTION

Street and open-air markets have been present in societies since humans ceased being nomadic and began settling in specific locations, practicing livestock farming and agriculture. This custom persisted through the Middle Ages in Greek and Roman communities and was brought to Brazil during its colonization (Santos, Acioly, Bezerra & Moser, 2013). They hold great economic, cultural and social importance, reflected in an environment where people buy, sell and converse with acquaintances (Bernardino, 2015). According to Macarenhas and Dolzani (2008), street markets represent a type of retail market organized by the municipality on a weekly basis, aimed at the commercialization of foodstuffs and basic products.

In the case of Goiania, Brazil, the Hippie Fair holds historical and cultural heritage value for the city, driving the entire productive chain and having a significant impact on the local economy, including the hotel and travel agency sectors (Carvalho, Wendland & Mota, 2007). Additionally, it holds the status of being the largest open-air market in Latin America (Silvestre, 2016; Silva, 2020). Although its origins in 1969 are linked to the hippie movement, with the sale of handicrafts, children's activities and traditional foods (Maia & Coelho, 1997), it is now primarily characterized by the sale of a variety of low-cost clothing items, such as underwear, jeans, knitwear, children's clothing and more, most of which are produced by the vendors themselves (Sobrinho, 2012).

Although a significant portion of street market workers operate informally, many are officially registered as Individual Microentrepreneurs (MEI) (Beckman, 2017; Oliveira, 2019; Silva, 2020). Additionally, in the Brazilian state of Goias, thousands of businesses are operational, with 98.5% of them classified as Micro and Small Enterprises (MSEs), accounting for 54% of employment contracts and 27% of the Gross Domestic Product (GDP) (SEBRAE, 2018). These figures also reflect the national reality, as shown on the Ministry of Economy's website (2023). Thus, there is a clear need for generating information to support the continuity of such entities, one way being the use of managerial artifacts (Feil & Haberkamp, 2020).

Managerial artifacts assist in the planning and development of businesses (Frezatti, Bido, Cruz & Machado, 2015), being characterized as tools, management philosophies, among others (Soutes, 2006), including, but not limited to, inventory control, cost control and balance sheets (Lima & Soares, 2022). Their use also helps increase profit and reduce the likelihood of bankruptcy for Micro and Small Enterprises (Feil & Haberkamp, 2020). Oyadomari, Cardoso and Perez (2010) also consider them important for supporting the innovation management process in these organizations.

According to David, Carvalho and Penteado (2011), innovation can contribute to achieving better results for MSEs, helping ensure their survival in the market (Falaster & Costa, 2020). Radical innovation refers to a completely new idea, unparalleled in the market, such as the creation of the USB flash drive, which offered higher quality, capacity and speed compared to its predecessor, the CD. Incremental innovation, which is more common, results from significant improvements or enhancements to an existing product or service, achieved through additions or substitutions of new materials (Reis, Carvalho & Cavalcante, 2011). Despite these benefits, Souza and Heinzmann (2014) and Oliveira et al. (2021) state that MSEs struggle with effective innovation management due to their lack of managerial artifacts in their businesses.

In this context, this study aims to address the following question: Is there a correlation between the use of managerial artifacts and the level of innovation management among vendors at the Goiania Hippie Fair? Accordingly, the general objective of the research is to verify whether there is a positive relationship between the use of managerial artifacts and the degree of innovation among vendors at the Goiania Hippie Fair.

This research is theoretically justified by the fact that, although the topics of managerial artifacts and innovation are present in several studies, such as those by Lima and Soares (2022), Callado and Melo (2018), Bontempo, Witotovicz and Yoshitake (2019) and Silva et al. (2018), Brazilian literature lacks studies that analyze the relationships between the use of managerial artifacts and the innovation management process, especially concerning street market vendors. Therefore, this study aims to address this gap. Its practical justification lies in investigating the characterization of the Hippie Fair vendors and describing their main managerial and innovative practices, potentially serving as a source of information for future practices and training to help them improve in these contexts. Finally, its social justification considers the importance of the vendors' activities for the local economy and the livelihood of approximately 6,884 registered vendors in Goiania (Prefeitura de Goiania, 2023) and their families.

2. THEORETICAL FRAMEWORK

2.1 Managerial artifacts

Accounting is essential for facilitating congruence between the activities performed by employees and the fundamental purposes of the organization (Oyadomari, Ferreira, Vicente, Neto & Luz, 2008). Accordingly, according to Padoveze (2012), the managerial accountant plays a key role in providing and monitoring information so that managers can make more informed decisions. Due to its intrinsic characteristics, managerial accounting must innovate and introduce new elements and techniques within the organization and its analyses to create the most suitable plan for that institution. Therefore, to assist in the processes of generating and interpreting information, instruments known as managerial artifacts are utilized (Souza, Lisboa & Rocha, 2003).

According to Simon (1996), an artifact is an object that helps humans achieve specific goals. In the following century, Leodoro (2008) explored the etymology of the term, which originates from the Latin "*arte factus*", interpreted as "a product made with art". In the context of managerial artifacts, these can be classified as activities, management philosophies, instruments, or models used by managerial accountants, following historical evolution (Soutes, 2006). The information generated by these instruments must be relevant for managerial decision-making (Costa, Cruz & Espejo, 2011). Finally, Espejo (2008) states that these artifacts should facilitate organizational processes, particularly in optimizing resources in the long term.

From the perspective of Brazilian MSEs, Feil and Haberkamp (2020) argue that the use of managerial artifacts can not only boost the profitability of small businesses but also minimize the occurrence of premature failures in these companies. Similarly, Santos, Azevedo, Lima and Lucena (2017) assert that their use significantly reduces resource wastage in organizational operations, while their misuse can compromise value creation by these entities. Finally, the lack of managerial artifacts can result in delays in meeting demands and a loss of productivity, which consequently leads to lower profitability (Maciel & Iaroozinski, 2022).

Lima and Soares (2022) subdivide artifacts into five categories: a) production control artifacts, b) operational artifacts, c) financial artifacts, d) prospecting artifacts, and e) heritage artifacts. In this research, these characterizations were considered, along with those by Rosa, Soares and Iudícibus (2018), Birk, Fedato and Pires (2020), Callado and Melo (2018) and Feil and Haberkamp (2020). Adapting them to the reality of vendors in Goiania, the following categories were selected: a) commercial artifacts, b) financial artifacts, c) planning artifacts, and d) heritage and results artifacts. The types of artifacts, their main definitions and the foundational authors are summarized below.

Table 1 - Managerial artifacts

type of artifact	artifacts	definition	authors indicated
commercial artifacts	AC1 - inventory control	All organization and storage of commercialized products (Dias, 2010).	Birk et al. (2020); Feil & Haberkamp (2021); Lima & Soares (2022)
	AC2 - sales control	Sales volume required to generate profit after covering expenses (Feil & Haberkamp, 2020).	Feil e Haberkamp (2020)
financial artifacts	AF1 - cost and expense control	Monitoring of expenses related to the commercialization and management of companies (Garrison, 2013).	Rosa et a. (2018); Feil & Haberkamp (2020); Lima & Soares (2022)
	AF2 - break-even point	The sales level at which all costs are covered, but profit is zero. From this point, every additional unit sold increases the company's profit (Garrison, 2013).	Birk et al. (2020); Feil & Haberkamp (2020)
planning artifacts	AP1 - business budget	A plan expressed in financial and operational terms to control performance and resource allocation (Malmi e Brown, 2008).	Rosa et al. (2018); Feil & Haberkamp (2020); Lima & Soares (2022)
	AP2 - business plan usage	A document that outlines strategies, operations and projections (Salim et al., 2005).	Rosa et al. (2018)
heritage and results artifacts	APR1 - balance sheet	A reflection of the company's assets, liabilities and equity (Rosa et al., 2018).	Callado & Melo (2018); Feil & Haberkamp (2020); Lima e Soares (2022)
	APR2 - income statement (IS)	A comparison of the company's expenses and revenues, providing the result (Marion, 2009).	Callado & Melo (2018); Feil & Haberkamp (2020); Lima & Soares (2022)

Source: The authors (2024)

In addition to the previously mentioned benefits that managerial artifacts offer to entities, they can also be considered important monitoring tools, aiding in the visibility and operation of innovations (Oyadomari et al., 2010), which also contribute directly to business growth (Bessant & Tid, 2019). Frezzati et al. (2015) demonstrated the influence of managerial artifacts on the innovation process within organizations, while also highlighting the ability to configure and adjust management systems to foster a culture of innovation, enhancing employee creativity and entrepreneurship.

2.2 Innovation management

The term "innovation" originates from Latin, with *in and novare meaning "to make something new". A more detailed definition is "the successful exploitation of new ideas" (Bessant & Tid, 2019). From this perspective, according to the Oslo Manual (1997), innovation involves the introduction of a product or service that may be entirely new or simply improved, contributing to better results for the company and, consequently, to its growth in the market. Furthermore, Dickel and Moura (2016) state that innovation management is usually present in organizations with a competitive and dynamic profile.*

In the context of MSEs, David, Carvalho and Penteado (2011) compiled various examples of how innovation can support these organizations. Some increased their profits, others enhanced production agility and some even reduced operational costs, for instance, by changing the order in which steps in clothing production are performed. Despite these benefits, Souza and Heinzmann (2014) and Oliveira et al. (2021) state that small business owners typically do not use managerial artifacts, which hinders effective innovation management.

Lubatkin, Simsek, Ling and Veiga (2006) discuss the two branches of innovation: exploration or radical, and exploitation or incremental. Radical innovation is associated with terms such as "taking risks", "discovery" and "experimentation", focusing on new investment possibilities. Incremental innovation, on the other hand, is related to terms like "efficiency", "execution" and "refinement", involving continuous improvements derived from established certainties (March, 1991). Finally, the Oslo Manual (1997) adds that radical innovations significantly impact the sector and the economic activities of companies, whereas incremental innovations can be implemented in a less formal manner in the market.

Calíope and Filho (2015) state that, in the context of street markets, the most commonly used type of innovation is incremental, in the form of creative imitation, where designs from shopping malls and other vendors are replicated with modifications, such as changes in fabrics and trimmings. In these cases, designers are free to reproduce the pieces as long as they associate the products with their own brands, carefully avoiding crossing the line into counterfeiting (Tiwari, 2014). There is also the presence of a cycle: someone creates a piece, which leads to its reproduction, followed by market saturation of that item, eventually driving the development of new incremental innovations to ensure the survival of the businesses (Calíope & Filho, 2019).

For this research, after categorizing innovations as radical and incremental (Lubatkin et al., 2006; March, 1991), the characterizations of Bontempo et al. (2019), Silva et al. (2018), the Oslo Manual (1997), Calíope and Filho (2015) and Carvalho, Reis and Cavalcante (2011) were considered to identify the most suitable innovation opportunities for micro and small entrepreneurs associated with the Goiania fair. Below is a summarized presentation of the types of innovations, their main definitions and the foundational authors:

Table 2 - Innovations

type of innovation	innovation	definition	authors indicated
radical innovations	IR1 - product and/or service innovation	New products or services offered to consumers (Oslo Manual, 1997)	Bontempo et al. (2019) ; Silva et al. (2018); Oslo Manual (1997); Carvalho et al. (2011)
	IR2 - process innovation	Methods, equipment and/or skills for developing new services (Oslo Manual, 1997)	Bontempo et al. (2019); Silva et al. (2018); Oslo Manual (1997); Carvalho et al. (2011)
	IR3 - platform innovation	A set of common methods for the technological assembly of a product portfolio (Silva et al., 2018)	Silva et al. (2018)
incremental innovations	II1 - product and/or service innovation	Products or services offered to consumers with substantial improvements (Oslo Manual, 1997)	Bontempo et al. (2019); Silva et al. (2018); Oslo Manual (1997); Carvalho et al. (2011)
	II2 - marketing innovation	Changes in the appearance or packaging of a product, creating a new design (Carvalho et al., 2011).	Silva et al. (2018); Oslo Manual (1997); Carvalho et al. (2011); Calíope & Filho (2015).
	II3 - creative imitation	Copying designs from soap operas, shopping malls, or other vendors, modifying fabrics and trimmings (Calíope & Filho, 2015).	Calíope & Filho (2015)

Source: The authors (2024)

Typically, investments in innovation are made to find solutions for remaining in the market and ensuring survival (Falaster & Costa, 2020). In small businesses, Oliveira, Ferreira, Silva and Lima (2016) state that its use tends to reduce debt and increase sales, revenue, customer base and product quality, thereby ensuring success in their operations. Thus, the innovation process contributes to organizational survival and increases the likelihood of continuity in a competitive and dynamic sector (Hogan & Coote, 2014).

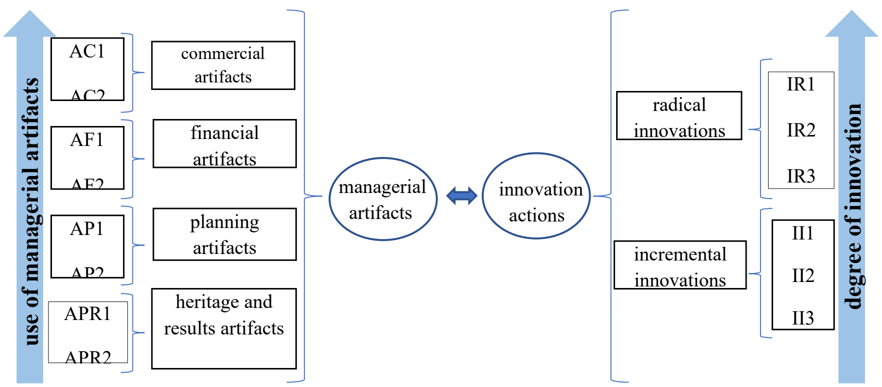
2.3 Research hypotheses

Nisiyama and Oyadomari (2012) conducted research to link managerial accounting and innovation, analyzing various studies that relate these two perspectives. The authors emphasize that the innovation process must be managed for organizations to achieve success. Frezatti et al. (2015), in turn, sought to demonstrate the use of accounting artifacts by formulating hypotheses regarding their influence on the innovation process within organizations, which yielded positive results.

In this context, considering that the use of managerial artifacts can boost MSEs (Feil & Haberkamp, 2020; Santos et al., 2017; Maciel & Neto, 2022), that innovation is essential for the survival of these businesses (Hogan & Coote, 2014; Falaster & Costa, 2020; Oliveira et al., 2016), and that the use of managerial artifacts has a positive impact on innovation management (Nisiyama & Oyadomari, 2012; Frezatti et al., 2015), the following hypotheses are formulated, as also illustrated in Figures 1, 2, 3 and 4:

H1: *There is a positive relationship between the use of managerial artifacts and the degree of innovation among vendors at the Goiania Hippie Fair.*

Figure 1: Research hypothesis (H1)



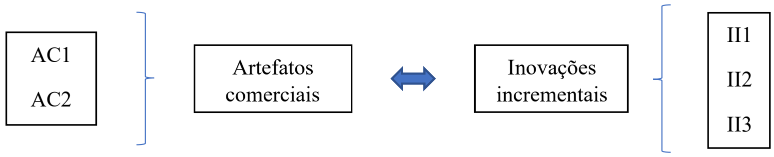
Source: The authors (2024)

2.3.1 Complementary hypotheses

Information on inventory control and sales control can help entrepreneurs determine when to implement incremental innovation and which aspects need improvement. For instance, if the stock of a specific item does not sell frequently, or when considering the pricing of a product, the entrepreneur chooses to change specific elements that could reduce costs and increase the product's margin. Therefore, the following hypothesis is proposed:

H1 a) *There is a positive relationship between the use of commercial artifacts and the degree of incremental innovation among vendors at the Goiania Hippie Fair.*

Figure 2: Research hypothesis (H1 a)

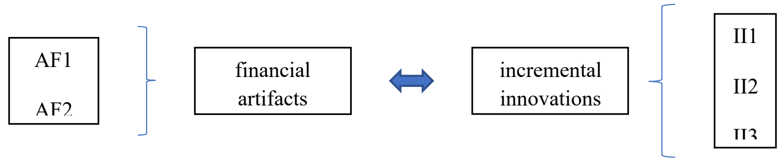


Source: The authors (2024)

Information on cost and expense control and break-even points can help entrepreneurs determine when to implement incremental innovation and which aspects need improvement. For example, when a company's revenue does not meet expectations and fails to surpass the break-even point of its operations, it may prompt vendors to consider improvements in their business to not only minimize costs and expenses but also increase revenue. Therefore, the following hypothesis is proposed:

H1 b) *There is a positive relationship between the use of financial artifacts and the degree of incremental innovation among vendors at the Goiania Hippie Fair.*

Figure 3: Research hypothesis (H1 b)

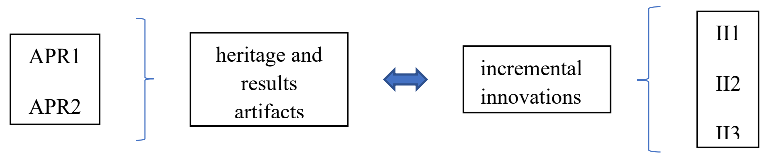


Source: The authors (2024)

Information from the balance sheet and income statement (IS) can help entrepreneurs determine when to implement incremental innovation and which aspects need improvement. For instance, it can assist vendors in identifying a high financial expense liability on their balance sheet when analyzed, prompting them to apply incremental innovations to reduce such a deficit. Therefore, the following hypothesis is proposed:

H1 c) *There is a positive relationship between the use of heritage and results artifacts and the degree of incremental innovation among vendors at the Goiania Hippie Fair.*

Figure 4: Research hypothesis (H1 c)



Source: The authors (2024)

3. RESEARCH METHODOLOGY

3.1 Methodological aspects

The present research methodology was based on Cooper and Schindler (2016), classifying it as a study with a quantitative approach. It was applied to the vendors at the Goiania Hippie Fair, aiming to deeply understand the relationship between the use of managerial artifacts and the degree of innovation at the fair, thereby addressing the research hypotheses. Table 3 presents the methodological aspects of this study:

Table 3 - Descriptors of research design

category	stage characterizing the research
degree to which the research question was crystallized	exploratory study
data collection method	physical questionnaire
researcher's ability to produce effects on variables	ex post facto
study objective	descriptive
time dimension	cross-sectional
scope of the topic – breadth and depth – of the study	statistical study
research environment	field environment
participants' perceptions of the research activity	real routine
data collection period	from 05/28/2023 to 06/18/2023

Source: Adapted from Cooper and Schindler (2016, p.128)

3.2 Population and sample

According to the Goiania City Hall website (2023), the Hippie Fair has approximately 6,884 registered vendors. However, as Sobrinho (2012) points out, there are numerous informal traders at the site. Thus, the population is represented by the total number of vendors at the Hippie Fair and the sample was census-based by adherence, excluding invalid or incomplete responses.

3.3 Data collection procedure

The data collection procedure consisted of three stages: a) identifying the respondents' profiles and characterizing the vendors' activities, b) assessing the intensity of managerial artifact usage and c) assessing the intensity of innovation usage.

The variables related to the use of managerial artifacts and innovation were measured using 5- and 6-point Likert scales. Managerial artifacts were categorized as "never", "annually", "semiannually", "monthly", "weekly" and "daily," adjusted according to the specific needs of each question. Innovations were measured on a scale from 0 to 4, where "0" corresponded to never and "4" represented very frequently. Table 4 presents the research variables.

Table 4 - Research variables

	construct	factors	variables
managerial artifacts	commercial artifacts	AC1 - Controle de estoque	Com qual frequência você realiza controle de estoque (produtos para venda)?
		AC2 - sales control	How often do you perform inventory control (products for sale)?
	financial artifacts	AF1 - cost and expense control	How often do you perform sales control?
		AF3 - break-even point	How often do you control your costs and expenses (e.g., purchasing items for sale, vendor costs, etc.)?
	planning artifacts	AP1 - business budget	How often do you create your business budget?
		AP2 - use of business plan	How often do you use credit lines, such as loans, financing, etc.?
	heritage and results artifacts	APR1 - balance sheet	How often do you use information from a Balance Sheet?
		APR2 - income statement (IS)	How often do you use information from the Income Statement (IS)?
innovations	radical innovations	IR1 - product and/or service innovation	How often do you create new products or services to sell?
		IR2 - process innovation	How often do you use new methods, equipment, or skills to develop new products or services?
		IR3 - platform innovation	How often do you start using new sales and marketing platforms (e.g., Instagram, flyers, etc.)?
	incremental innovations	II1 - product and/or service innovation	How often do you improve products or services already offered to your customers?
		II2 - marketing innovation	How often do you change the appearance or packaging of a product, creating a new design?
		II3 - creative imitation	How often do you draw inspiration from movie themes, shopping malls, or other vendors by changing fabrics and trimmings?

Source: The authors (2024)

3.4 Data analysis technique

The questionnaire underwent a pre-test with seven researchers from the Laboratory of Accounting, Innovation & Society (LACIS/UFG) between February 7, 2023 and February 11, 2023. Following feedback, 77 contributions were received, of which 48 were accepted.

The data were analyzed using the SPSS statistical software, applying the following tests to address the research hypotheses: descriptive statistics and Pearson correlation analysis.

4. PRESENTATION OF RESULTS

4.1 Descriptive statistics

4.1.1 Descriptive statistics of vendors and their stalls

During the field research, 54 responses were collected, with 27 women and 27 men participating. Additionally, 50% had an active CNPJ registration, 79.6% cited the Hippie Fair as their primary source of income and 90.7% operated only one activity at their stall. Furthermore, 1.85% reported having no formal education, 29.63% completed elementary school, 53.70% finished high school and 14.81% attained higher education. Tables 5 and 6 detail the remaining characteristics surveyed:

Table 5 – Descriptive statistics of vendors and their stalls

variable	mean	standard deviation	minimum	maximum
age	47	13.6	19	75
years as an entrepreneur	18	10.42	1	41
years at the hippie fair	15	8.93	1	30
number of people working with the vendor	4	6.20	0	40
number of stalls at the fair	1	0.86	1	5

Source: The authors (2024)

It is observed that the average age of the respondents is 47 years. The average number of years as entrepreneurs among the respondents is 18 years, which exceeds the average of 15 years working at the Hippie Fair. This indicates that many vendors started their entrepreneurial activities before working at the Goiania Hippie Fair. On average, vendors have four assistants, including salespeople and seamstresses who produce items specifically for their stalls. Overall, vendors manage an average of one stall at the fair.

Table 6 – stall activities

	frequency	percentage
men's clothing	6	11.1%
women's clothing	30	55.6%
children's clothing	4	7.4%
intimate apparel	3	5.6%
footwear	1	1.9%
accessories	3	5.6%
women's and children's clothing	2	3.7%
women's and men's clothing	2	3.7%
women's, men's, and intimate apparel	1	1.9%
unisex hoodies	1	1.9%
bedding	1	1.9%

Source: The authors (2024)

Regarding stall activities, more than half of the respondents sell women's clothing, followed by men's clothing in second place and children's clothing in third. The least frequent sales include footwear, women's, men's and intimate apparel, unisex hoodies and bedding.

4.1.2 Descriptive statistics of managerial artifacts

Regarding managerial artifacts, the second-order factor most frequently used was commercial artifacts, with an average of 3.05, followed by financial artifacts with an average of 2.86, planning artifacts with 0.98 and, finally, heritage and results artifacts with an average of 0.62. The overall average of the construct, as a third-order factor, is 1.88, with a standard deviation of 0.90.

Table 7 – Descriptive statistics of managerial artifacts

	mean	standard deviation	median	min.	max.	skewness	kurtosis
managerial artifacts	1.88	0.90	2.00	0.00	3.38	-0.68	-0.32
commercial artifacts	3.05	1.43	3.75	0.00	5.00	-0.98	-0.12
inventory control	2.59	1.83	4.00	0.00	5.00	-0.62	-1.50
sales control	3.50	1.49	4.00	0.00	5.00	-1.57	1.57
financial artifacts	2.86	1.71	4.00	0.00	5.00	-0.97	-0.84
cost and expense control	2.93	1.72	4.00	0.00	5.00	-1.03	-0.71
break-even point	2.80	1.81	4.00	0.00	5.00	-0.82	-1.10
planning artifacts	0.98	1.06	0.50	0.00	3.50	0.50	-1.15
business budget	1.35	1.81	0.00	0.00	5.00	0.75	-1.22
use of business plan	0.61	1.09	0.00	0.00	4.00	1.66	1.56
heritage and results artifacts	0.62	1.10	0.00	0.00	3.00	1.52	0.67
balance sheet	0.59	1.09	0.00	0.00	3.00	1.61	0.97
income statement (IS)	0.65	1.14	0.00	0.00	3.00	1.47	0.45

Source: The authors (2024)

It is observed that 50% of the managerial artifacts have values above 2, meaning they are used at least semiannually. Furthermore, all factors had responses equivalent to 0, which was selected by vendors who never used the artifact in question. This indicates that different management methodologies can coexist within the same environment.

4.1.3 Descriptive statistics of innovations

Regarding innovations, the second-order factor most frequently used was incremental innovations, with an average of 1.80, followed by radical innovations with an average of 1.50. The overall average of the construct, as a third-order factor, is 1.65, with a standard deviation of 0.68.

Table 8 – Descriptive statistics of innovations

	mean	standard deviation	median	min.	max.	skewness	kurtosis
SECOND-ORDER FACTOR: INNOVATION	1.65	0.68	1.75	0.00	2.83	-0.59	-0.54
FACTOR: RADICAL INNOVATIONS	1.50	0.83	1.67	0.00	3.33	-0.27	-0.75
radical innovation in products and/or services	2.22	1.30	3.00	0.00	4.00	-0.59	-1.09
radical process innovation	0.46	0.69	0.00	0.00	3.00	1.55	2.43
platform innovation	1.81	1.42	2.00	0.00	4.00	-0.07	-1.50
FACTOR: INCREMENTAL INNOVATIONS	1.80	0.80	2.00	0.00	3.33	-0.39	-0.58
incremental innovation in products and/or services	2.22	1.38	3.00	0.00	4.00	-0.33	-1.28
marketing innovation	0.48	0.91	0.00	0.00	3.00	1.72	1.69
creative imitation	2.70	1.55	3.00	0.00	4.00	-0.81	-0.97

Source: The authors (2024)

It can be stated that 50% of the innovations surveyed have values above 2, meaning they are used at least occasionally. Furthermore, all factors had responses equivalent to 0, which were selected by vendors who never utilized the innovation in question. This indicates that, overall, vendors make limited use of innovation artifacts.

4.2 Hypothesis testing

4.2.1 Main research hypothesis

H1 aimed to establish a positive relationship between the use of managerial artifacts and the degree of innovation among vendors at the Goiania Hippie Fair.

Table 9 - Result H1

factor 1	factor 2	Pearson correlation	significance	result
managerial artifacts	innovations	0.435	0,001	confirmed

Source: The authors (2024)

The Pearson correlation indicates a moderate association of 0.435 between the factors managerial artifacts and innovation. Thus, the hypothesis in question was confirmed, considering a p-value ≤ 0.01. This means that, in the collected sample, the greater the use of managerial artifacts, the greater the use of innovation by vendors at the Goiania Hippie Fair.

4.2.2 Complementary research hypotheses

The complementary hypotheses aimed to achieve similar insights to the main hypothesis but at the level of second-order factors. The three hypotheses asserting a positive relationship between incremental innovation and commercial artifacts (H1a), financial artifacts (H1b) and heritage and results artifacts (H1c) were confirmed.

Table 10 - Results of complementary hypotheses

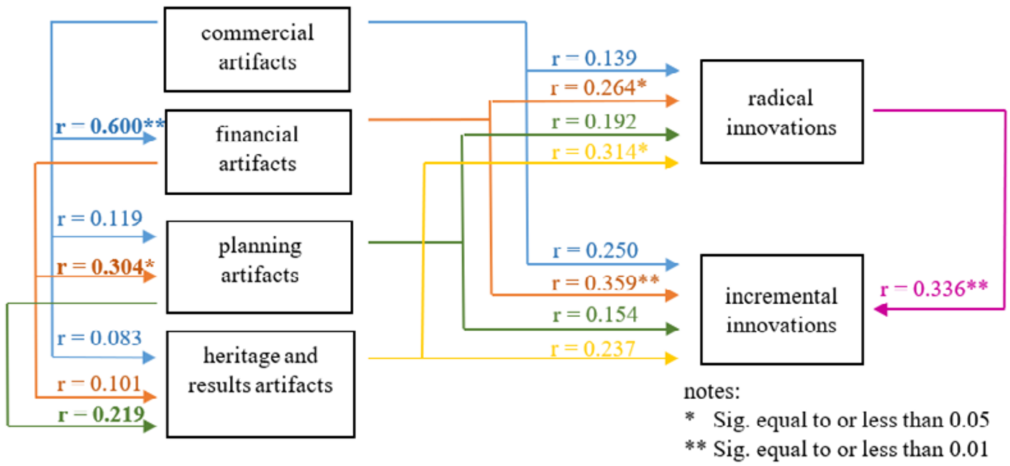
complementary hypothesis	factor 1	factor 2	Pearson correlation	significance	result
H1a	commercial artifacts	incremental innovations	0.250	0.069	confirmed
H1b	financial artifacts	incremental innovations	0.359	0.008	confirmed
H1c	heritage and results artifacts	incremental innovations	0.237	0.084	confirmed

Source: The authors (2024)

5 DISCUSSIONS

The hypotheses of this study sought to verify and understand the relationship between managerial artifacts and innovations within the context of vendors at the largest open-air market in Latin America, the Goiania Hippie Fair. The results of the tests supported the main hypothesis, aligning with the findings of Nisiyama and Oyadomari (2012) and Frezatti et al. (2015), as well as the three complementary hypotheses. Furthermore, radical innovations showed a positive relationship with both financial artifacts and heritage and results artifacts. However, no positive relationships were identified between this type of innovation and planning artifacts or commercial artifacts.

Figure 5 - Pearson correlations of managerial artifacts and innovations

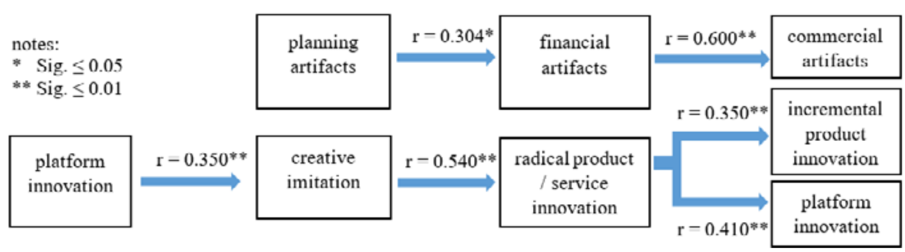


Source: The authors (2024)

Furthermore, during on-site data collection, respondents shared several impressions previously discussed in this study, such as the fact that many vendors produce their own goods, as noted by Sobrinho (2012). Additionally, some respondents mentioned that innovation, such as offering new or improved products, helps them survive in the market, confirming the findings of Falaster and Costa (2020). Finally, many expressed feeling neglected by the local government. Despite being the largest fair in Latin America and promoting local tourism, they feel they lack governmental support for the fair's promotion and structural maintenance.

Additionally, as shown in Figure 6, the greater the use of planning artifacts, the greater the use of financial artifacts. Moreover, the more frequently financial artifacts are used, the more consistent the use of commercial artifacts becomes. Therefore, if vendors sought or were provided with knowledge about heritage and results artifacts, this population would likely enhance the use of all managerial artifacts discussed in this study. Following this logic, understanding that financial statements can provide valuable information for business decision-making would possibly encourage them to plan their business more effectively and better manage their financial and commercial information.

Figure 6 - Pearson correlations of second- and third-degree factors



Source: The authors (2024)

Finally, it is reasonable to understand from Figure 6 that the greater the use of platform innovation, the greater the use of creative imitation and, consequently, the greater the use of radical innovation in products and/or services. The more frequently radical innovation is used, the more consistent the use of incremental innovation in products and/or services becomes, as well as platform innovation once again. Therefore, if vendors were trained in the importance of innovating their product promotion platforms, this population would likely increase the use of all the innovations mentioned above. Following this logic, understanding how the use of new promotion platforms can improve their businesses would possibly encourage them to creatively imitate current trends, develop new products and continuously improve them to always have something novel to promote.

6. FINAL CONSIDERATIONS

The main objective of this research was to analyze whether greater use of managerial artifacts by vendors at the Goiania Hippie Fair corresponds to greater use of innovation. The secondary objectives focused on specifically analyzing the types of artifacts in relation to the types of innovations. To achieve this, the administration of questionnaires was essential, with responses collected in person on fair days to gather the necessary data.

After organizing the data, descriptive statistical tests were conducted to better understand the reality of the vendors, along with Pearson correlation tests to evaluate the hypotheses. As a result, the main hypothesis—that there is a positive relationship between the use of managerial artifacts and the degree of innovation among vendors at the Goiania Hippie Fair—was confirmed, as were the three complementary hypotheses linking incremental innovations to commercial artifacts, incremental innovations to financial artifacts and incremental innovations to heritage and results artifacts. Additionally, it was suggested that increasing the use of heritage and results artifacts and platform innovation would trigger a rise in the use of several other factors by the vendors.

Addressing the research limitations, it is important to note that the results cannot be generalized, as the study sample was census-based by adherence and did not encompass all vendors. Furthermore, due to time constraints, it was not possible to cover all the fair's corridors during data collection, which may have limited perspectives from different sections of the fair. Lastly, the temporal scope is restricted to the cross-sectional data collected in 2023.

This study sought to address theoretical gaps regarding the relationship between managerial artifacts and innovation, particularly within the context of street markets, serving as a source of information for future studies, practices and training to aid in advancing these contexts. Additionally, it characterized vendors in the aftermath of the global Covid-19 pandemic, providing a theoretical foundation for future research. For further studies, it is recommended to expand data collection to cover the entire fair, aiming to determine the influence of managerial artifacts and innovations on the success and revenue of vendors at the Goiania Hippie Fair. From a theoretical perspective, it is suggested to conduct studies with an anthropological approach to explore the meaning, symbolism and significance of accounting information from the vendors' perspective. Such an approach could provide more robust data to support stakeholders' decision-making within these organizations while also underpinning interventions aimed at advancing these commercial ventures.

REFERENCES

Beckman, A. K. C. (2017). Formalização do microempreendedor individual: um estudo com os feirantes do bairro da Cremação - Belém - PA. *Revista Paraense de Contabilidade*, 2(2), 17-29.

Bernardino, S. D. S. (2015). *A feira livre da cidade de Nova Cruz - RN:* aspectos culturais e econômicos. (Mestrado em Geografia). Programa de Pós-Graduação em Geografia, Universidade Federal da Paraíba, Paraíba, 2015.

Bessant, J., & Tidd, J. (2019). *Inovação e empreendedorismo* (3rd ed.). Porto Alegre: Bookman Editora.

Birk, M., Fedato, G. A. L., & Pires, V. M. (2020). os artefatos contábeis (re)produzidos pela academia para os pequenos negócios. *Revista da Micro e Pequena Empresa*, 14(3), 105-119.

Bontempo, P. C., Witotovicz, R. M., & Yoshitake, M. (2019). Inovação em micro e pequenas empresas de Goiania. *Gestão & Regionalidade*, 35(103).

Calíope, T. S., & Silva Filho, J. C. L. (2016). Imitação e inovação na moda: mapeando o processo criativo no segmento de "modinha" em uma feira regional. *International Journal of Innovation*, 4(2), 119-139.

Calíope, T. S., & Silva Filho, J. C. L. (2019). Na feira também tem inovação? Uma análise da criação e confecção de 'modinha' na feira da Rua José Avelino. *Gestão & Regionalidade*, 35(105), 142-160.

Callado, A. A. C., & Melo, W. A. (2018). Ferramentas e informações gerenciais em micro e pequenas empresas. RAUnP - *Revista Eletrônica do Mestrado Profissional em Administração da Universidade Potiguar*, 10(3), 53-65.

Cardoso Sobrinho, C. A. (2012). *Processo de compra de produtos para recém-nascidos na feira hippie de Goiania-GO:* um olhar antropológico (Dissertação de Mestrado). Universidade Federal de Uberlândia, Uberlândia, Minas Gerais.

Carvalho, G. L., Wendland, S. M., & da Mota, A. M. G. (2007). O impacto da feira hippie no setor turístico-hoteleiro de Goiania. *Boletim Goiano de Geografia*, 27(3), 29-48.

Carvalho, H. G. D., Reis, D. R. D., & Cavalcante, M. B. (2011). *Gestão da inovação*. Curitiba: Aymará.

Cooper, D. R., & Schindler, P. S. (2016). *Métodos de pesquisa em Administração*.12th ed. McGraw Hill Brasil. P 712.

Costa, F., da Cruz, A. P. C., & Espejo, M. M. D. S. B. (2011). Paradoxo na utilização de artefatos contábeis gerenciais: discussão sobre a influência de fatores inconscientes inspirada em conceitos preconizados pela psicologia analítica. *Revista Universo Contábil*, 7(3), 59-76.

David, D. E. H., Carvalho, H. G. D., & Penteado, R. S. (2011). *Gestão de ideias*. Curitiba: Aymará.

Dias, M. A. P. (2010). *Administração de materiais: uma abordagem logística*. 5th ed. São Paulo.

Dickel, D. G., & de Moura, G. L. (2016). Organizational performance evaluation in intangible criteria: a model based on knowledge management and innovation management. *RAI - Revista de Administração e Inovação*, 13(3), 211-220.

Espejo, M. M. D. S. B. (2008). *Perfil dos atributos do sistema orçamentário sob a perspectiva contingencial: uma abordagem multivariada* (Doutorado em Ciências Contábeis). Programa de Pós-Graduação em Ciências Contábeis, Universidade de São Paulo, São Paulo, 2008.

Falaster, C. D., & Costa, P. R. (2020). Esforços de inovação de pequenos negócios na América Latina. *Iberoamerican Journal of Entrepreneurship and Small Business*, 10(1), e1957.

Feil, A. A., & Haberkamp, A. M. (2020). Análise do nível de importância e das variáveis intervenientes na utilização de ferramentas gerenciais em micro e pequenas empresas. *Revista da Micro e Pequena Empresa*, 14(3), 120-133.

Frezatti, F., de Souza Bido, D., da Cruz, A. P. C., & de Camargo Machado, M. J. (2015). A estrutura de artefatos de controle gerencial no processo de inovação: existe associação com o perfil estratégico? *Brazilian Business Review*, 12(1), 129.

Garrison, R. H., Noreen, E. W., & Brewer, P. C. (2013). *Contabilidade gerencial*. 14th ed. Porto Alegre: AMGH.

Hogan, S. J., & Coote, L. V. (2014). Organizational culture, innovation, and performance: a test of Schein's model. *Journal of Business Research*, 67(8), 1609-1621.

Lei Complementar n. 171, de 29 de maio de 2007– DOM n. 4.147, de 26 de junho de 2007. (2007). *Lei institui o Plano Diretor e o Processo de Planejamento do Município de Goiania*. Goiania, Goiás. Retrieved from: http://sinatran.org.br/blog/wp-content/uploads/2013/08/planodiretor.pdf

Leodoro, M. P. (2008). A educação científica pelos artefatos tecnológicos. *Revista Brasileira de Ensino de Ciência e Tecnologia*, 1(3).

Lima, A. P., & Soares, J. L. (2022). Artefatos gerenciais e desempenho produtivo: uma investigação em fazendas produtoras de leite. *Custos e Agronegócio On Line*, 18(2), 223-256.

Lubatkin, M. H., Simsek, Z., Ling, Y., & Veiga, J. F. (2006). Ambidexterity and performance in small-to medium-sized firms: the pivotal role of top management team behavioral integration. Journal of management, 32(5), 646-672

Maciel, A., & Neto, A. I. (2022). Análise da utilização das ferramentas gerenciais na construção civil entre MPEs E MGEs. *Revista Gestão Organizacional*, 15(1), 132-149.

Maia, J. E. S., & Coelho, T. O. (1997). O comércio varejista periódico no espaço urbano contemporâneo: um estudo na feira hippie de Goiania. *Boletim Goiano de Geografia,* vol. 17, n. 2, p. 1-26.

Malmi, T., & Brown, D. A. (2008). Management control systems as a package : oportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287-300.

March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization science*, 2(1), 71-87.

Marion, J. C. (2009). *Contabilidade Empresarial*. 15th ed. São Paulo: Atlas, 534 p.

Mascarenhas, G., & Dolzani, M. C. (2008). Feira livre: territorialidade popular e cultura na metrópole contemporânea. *Ateliê Geográfico*, 2(2), 72-87.

Ministério da Economia. (2022). *Mais de 1,3 milhão de empresas são criadas no país em quatro meses*. Access in: 01 nov. 2022. Available in : <https://www.gov.br/economia/pt-br/assuntos/noticias/2022/julho/mais-de-1-3-milhao-de-empresas-sao-criadas-no-pais-em-quatro-meses#:~:text=As%20micro%20e%20pequenas%20empresas,de%20acordo%20com%20o%20documento.>

Nisiyama, E. K., & Oyadomari, J. C. T. (2012). Sistemas de controle gerencial e o processo de inovação. *Revista de Administração e Inovação*, 9(1), 106-125, jan./mar.

Oliveira, B. P. C. P., Balliano, T. L., Rita, L. P. S., Ferreira Junior, R. R., Sá, E. M. O., & Tonholo, J. (2021). Metodologia de gestão da inovação: um estudo de caso de micro e pequenas empresas na indústria do Estado de Alagoas. *Revista Brasileira de Gestão e Inovação*, 8(3), 1-26.

Oliveira, F. G. D. (2019). Análise da adesão dos feirantes de rio verde ao programa microempreendedor individual. (Mestrado em Administração). Mestrado Profissional em Administração do Centro Universitário Aves Faria, Centro Universitário Aves Faria, Goiania, 2019.

Oliveira, M. D. F. S., Ferreira, R. J., Silva, G. J., & Lima, R. R. B. O. (2016). O impacto das práticas inovadoras de micro e pequenos empreendedores na prosperidade de seus negócios. *Revista Capital Científico-Eletrônica (RCC□),*14(3), 100-116.

Oslo Manual. (1997). *Diretrizes para a coleta e interpretação de dados sobre inovação*. 3rd ed. [online]. Access in: 15 dez. 2022. Available in: <http://gestiona.com.br/wpcontent/uploads/2013/06/Manual-de-OSLO-2005. pdf.>

Oyadomari, J. C. T., Cardoso, R. L., da Silva, B. O. T., & Perez, G. (2010). Management control systems: comparative case study in Brazilian innovatives companies. *Revista Universo Contábil*, 6(4), 21.

Oyadomari, J. C. T., Ferreira, K. P., Vicente, H. C., de Mendonça Neto, O. R., & Luz, A. L. A. (2008). Adoção de artefatos de contabilidade gerencial e práticas de relações com investidores nas empresas que abriram capital no período de 2004 a 2007: um estudo sob a ótica da Teoria Neo-Institucional. *In: Anais do Congresso Brasileiro de Custos-ABC*.

Padoveze, C. (2012). *Contabilidade gerencial*. Curitiba: Iesde Brasil S/A.

Prefeitura de Goiania. (2022). *Feiras*. Access in: 28 jan. 2023. Available in: <https://www.goiania.go.gov.br/sobre-goiania/feiras/>

Rosa, L. I., Soares, J. L., & de Iudícibus, S. (2018). A intensidade de utilização da informação contábil e seu relacionamento com a percepção de competitividade e o desempenho de empresas rurais: um estudo em empresas produtoras de soja no Paraná. *Custos e Agronegócio On Line*. 14, p.409 – 442

Salim, C. S., Hochman, N., Ramal, A. C., Ramal, S. A. (2005). *Construindo planos de negócios*. 3rd ed. Rio de Janeiro: Elsevier Brasil

Santos, J. M., Acioly, T. M. S., Bezerra, T. M. E., & Moser, L. M. (2013, dezembro). *Avaliação do perfil de produtos de origem vegetal comercializados na feira-livre da Cohab I na cidade de Garanhuns.* XIII Jornada de Ensino, Pesquisa e Extensão, Recife, Pernanbuco.

Santos, J. V. J., Azevedo, Y. G. P., de Lima, D. H. S., & da Cunha Vieira, E. R. F. (2017). Análise dos artefatos gerenciais utilizados pelos food trucks da cidade de Natal/RN. *Revista de Gestão, Finanças e Contabilidade*, 7(3), 105-126.

SEBRAE. (2018). *Perfil das Microempresas e Empresas de Pequeno Porte.* Access in: 11 fev. 2023. Available in : <https://www.sebrae.com.br/Sebrae/Portal%20Sebrae/UFs/RO/Anexos/Perfil%20das%20ME%20e%20EPP%20-%2004%202018.pdf>

Silva, L. M. C., Ribeiro, A. R. B., Frascaroli, B. F., & de Moraes Filho, R. A. (2018). Análise do processo inovativo em pequena empresa: estudo de caso a partir do programa agentes locais de inovação. *Revista de Empreendedorismo e Gestão de Pequenas Empresas*, 7(1), 162-194.

Silva, S. M. (2020). Relações de trabalho no Polo de Confecção em Goiania, GO: a informalidade persiste? *Áskesis - Revista des discentes do Programa de Pós-Graduação em Sociologia da UFSCar*, 9(1), 221-239.

Silvestre, B. S. (2016). *Calças jeans como suporte para pensar o consumo – uma etnografia na Feira Hippie de Goiania* (Dissertação de Mestrado). Universidade Federal de Goiás, Goiania, Goiás.

Simon, H. A. (1969). The sciences of the artificial MIT Press. vol. 1, p 256, Cambridge, MA.

Soutes, D. O. (2006). *Uma investigação do uso de artefatos da contabilidade gerencial por empresas brasileiras* (Mestrado em Ciências Contábeis). Programa de Pós-Graduação em Controladoria e Contabilidade, Universidade de São Paulo, São Paulo, 2006.

Souza, D. B., & Heinzmann, L. M. (2014). Gestão da inovação: um estudo comparativo em MPEs de construção civil. *Revista Eletrônica Científica do CRA-PR*, 1(1), 1-13.

Souza, M. A. D., Lisboa, L. P., & Rocha, W. (2003). Práticas de contabilidade gerencial adotadas por subsidiárias brasileiras de empresas multinacionais. *Revista Contabilidade & Finanças*, 14, 40-57.

Tiwari, S. (2016). Intellectual property rights protection of fashion design in India: a panoramic view. *Available at: SSRN 2805346.*

APPENDIX

Appendix A - Hippie Fair Corridor

Fonte: Os autores (2023)

Appendix B - Hippie Fair at Christmas

Source: Fernando Leite / Jornal Opção (2018)

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 3, Pages 41 - 54, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1512

CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

INTERGOVERNMENTAL TRANSFERS AND PUBLIC SPENDING: AN ANALYSIS OF THE FLYPAPER EFFECT IN THE MUNICIPALITIES OF MINAS GERAIS

TRANSFERÊNCIAS INTERGOVERNAMENTAIS E GASTOS PÚBLICOS: UMA ANÁLISE DO EFEITO FLYPAPER NOS MUNICÍPIOS DE MINAS GERAIS

ABSTRACT
The Municipal Participation Fund (FPM, acronym in Portuguese) is a significant source of financial transfers from the federal government to municipalities, aiming to promote fiscal equity and support the financing of local expenditures. This study seeks to assess the effect of the fund on municipal spending in Minas Gerais. For this analysis, we employed a dynamic panel data regression methodology, and applied to a sample of 677 out of 853 municipalities in Minas Gerais, covering the period from 2008 to 2018, with the FPM as the variable of interest. The results indicate that public spending exhibit a dynamic behaviour, with past expenditures influencing current spending levels. We also observed that the receipt of the fund transfers generated an expansive effect on municipal public spending, highlighting the flypaper effect among municipalities in Minas Gerais, during the analyzed period. Overall, the findings confirm the hypothesis that public spendings of the municipalities in Minas Gerais were positively impacted by the FPM.

***Keywords*:** Municipal public spending; Municipal Participation Fund; Flypaper effect

RESUMO
O Fundo de Participação dos Municípios (FPM) é uma importante fonte de transferências financeiras do governo federal para os municípios, com o objetivo de promover a equidade fiscal e apoiar o financiamento de despesas locais. Este estudo tem como objetivo avaliar o efeito do fundo nos gastos dos municípios de Minas Gerais. Para esta análise, foi empregada a metodologia de regressão para dados em painel dinâmico, aplicada a uma amostra de 677 dos 853 municípios mineiros, no período de 2008 a 2018, tendo o FPM como variável de interesse. Os resultados evidenciam que os gastos públicos apresentam um comportamento dinâmico, com os valores desembolsados no passado influenciando os gastos atuais. Observou-se, também, que o recebimento de transferências do fundo gerou um efeito expansivo sobre os gastos públicos municipais, indicando a presença do efeito flypaper para os municípios mineiros, no período analisado. De maneira geral, os achados confirmam a hipótese de que os gastos públicos, dos municípios de Minas Gerais, foram positivamente impactados pelo FPM.

***Palavras–Chave*:** Gastos públicos municipais; Fundo de Participação dos Municípios; Efeito Flypaper

Veronica Costa Silva
Graduada em Ciências Contábeis pela Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM). Campus Mucuri. E-mail: veronica.costa@ufvjm.edu.br. https://orcid.org/0000-0003-2120-972X . http://lattes.cnpq.br/2288684672541179

Elizete Aparecida de Magalhães
Doutora em Economia Aplicada pela Universidade Federal de Viçosa (UFV). Mestre em Administração pela UFV. Graduada em Ciências Contábeis pela UFV. Professora do Departamento de Ciências Contábeis da Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM) - Campus Mucuri. E-mail: elizete.am@ufvjm.edu.br. https://orcid.org/0000-0001-7022-6361 . http://lattes.cnpq.br/0571305111927387

João Paulo de Oliveira Louzano
Doutor em Administração pela Universidade Federal de Viçosa (UFV). Mestre em Administração pela UFV. Graduado em Ciências Contábeis pela UFV. Docente do Curso de Ciências Contábeis na Universidade Federal de Juiz de Fora – Campus Governador Valadares (UFJF-GV). E-mail: jplouzano@ufjf.br. https://orcid.org/0000-0002-2920-8003 . http://lattes.cnpq.br/2102924556086343

Vasconcelos Reis Wakim
Doutor em Economia Aplicada pela Universidade Federal de Viçosa (UFV). Mestre em Desenvolvimento Regional pela Universidade Federal do Tocantins (UFT). Graduado em Ciências Contábeis pela UFV. Docente do Curso de Ciências Contábeis da Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM). Professor Permanente do Programa de Mestrado em Administração Pública da UFVJM.E-mail: vasconcelos.wakim@ufvjm.edu.br. https://orcid.org/0000-0002-0401-0180 . http://lattes.cnpq.br/2875248993312049

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 08 May 2023. Proofread: 25 November 2024. New alterations: 24 January 2025. Accepted: 20 February 2025, by Dr. João Estevão Barbosa Neto and Dra. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1 INTRODUCTION

The Federal Constitution of 1988 implemented a new system of fiscal federalism in Brazil, based on the decentralization of public finances and the expansion of mechanisms for the transfer of resources between the three levels of the Federation, generating an expansion of municipal revenue, through intergovernmental transfers (Liparizi, 2006).

These have an emphasis on federative regimes, with emphasis on vertical and horizontal imbalances. Vertical imbalances occur due to differences in charges and efficiency of tax collecting, through the various levels of government. The horizontal ones result from disparities in the propensity of spending between the layers of government themselves, usually between regions, states or municipalities (Santos, 2006).

Moraes (2006) highlights that intergovernmental transfers aim to balance the spending capacity of municipalities, especially smaller ones, which, due to tax inequality, end up overburdening their citizens, in order to equalize revenue to more developed municipalities. Costa and Castelar (2015) complement this, stating that these transfers are essential for local governments to be able to execute balanced budgets and meet their needs, without burdening the population.

Despite its positive effects on the degrowth of inter-regional fiscal imbalances, the system of intergovernmental transfers in Brazil produces distorted effects in relation to the fiscal performance of the receiving units (Cossio, 2002). Corroborating this argument, the study developed by Almeida (2015) empirically evidences an expansive effect of public spending from the receipt of intergovernmental transfers. The author found that the receipt of untied transfers generated increases in municipal public expenditures greater than the volume that would be produced by equivalent increases in income, a phenomenon that became known in the literature as the flypaper effect.

In Brazil, the transfer system that tends to reconcile regional differences in the provision of local public goods and the existence of fiscal imbalances of municipal governments has as its main element the Municipal Participation Fund (FPM) (Costa & Castelar, 2015). This fund is essential to guarantee mandatory constitutional transfers by the Union and is composed of 22.5% of the collection of Income Tax (IR) and Tax on Industrialized Products (IPI) (Constitution of the Federative Republic of Brazil, 1988). Its distribution to the municipalities is based on the number of inhabitants, determined by population groups, measured by an individual coefficient, as defined in Law No. 5,172 (1996).

The literature that studies the behavior of public spending indicates that transfers provide room for the undervaluation of the costs of local public goods, which contributes to the excessive increase in their demand. As mentioned, this problem is known in the literature as the flypaper effect, which shows how the increase in transfers induces an increase in public spending greater than the increase in income (Bailey & Connolly, 1998; Caliman, Santos, Pitanga, Guia & Darós, 2024; Inman, 2008; Lee & Vuletin, 2012; Luz Nossa, Monte-mor & Bezerra, 2022; Mattos, Rocha & Arvate, 2011; Pacheco & Saiani, 2021; Santos, 2018).

Considering the need for responsible fiscal management, as established by the Fiscal Responsibility Law (LRF), this study aimed to answer the following question: How did the FPM influence the spending of the municipalities of Minas Gerais, between 2008 and 2018? To this end, we assessed the effect of the fund on the expenses of the municipalities of Minas Gerais during this period.

As indicated by the aforementioned studies, the empirical literature focuses the debate on the federal level, presenting the results in aggregate form by states and regions of the country. We observed that most of the studies focus on the analysis of the effects of intergovernmental transfers, not individualizing the FPM, an important source of municipal tax collection. Thus, it is relevant to investigate the fund and its implications on the spending of the municipalities of Minas Gerais, because, in a context in which the country faces reduced revenue and higher expenses with the population, it is essential that public managers seek to optimize expenses effectively, without compromising the state's debt.

This study contributes, in a theoretical way, by deepening the analysis of the effect of the FPM on municipal spending, filling a gap in the literature by addressing this fund in a specific way, instead of analyzing intergovernmental transfers in an aggregated way. In addition, the results provide subsidies for municipal public management, allowing managers to optimize the use of FPM resources, promoting more effective decisions in budget planning and in the execution of public policies, with a focus on fiscal sustainability and improving the quality of services to the population.

This work consists of five sections, including this introductory part. Section 2 presents the theoretical aspects regarding the Intergovernmental Transfers and the Flypaper Effect. Section 3 outlines the methodological procedures employed. Sections 4 and 5 present the discussions of the results and the final considerations, respectively.

2 THEORETICAL FRAMEWORK

2.1 Intergovernmental transfers

According to the National Treasury Secretariat (STN, 2018a), Intergovernmental Transfers include the transfer of resources, current or capital, from one entity called the transferor to another denominated favored or receiver. They may be voluntary, in this case, intended for collaboration, help or assistance, or resulting from a constitutional or legal determination.

Vieira, Abrantes, Ferreira and Lopes (2017) state that the resources of municipal governments are often influenced by intergovernmental transfers, which characterizes Brazilian fiscal federalism. These transfers are part of the fiscal decentralization procedure and have as their main purpose to reduce socioeconomic discrepancies. They favor the equalization of the spending efficiency of regional government, by giving smaller municipalities a greater possibility of acquiring essential resources, which will be transformed into quality public services, which will increase the socioeconomic growth of the region.

For Chakraborty (2003), fiscal transfer procedures involve a delineation of the transfer of resources between different levels of government. The purpose of the system of intergovernmental transfers is to correct vertical and horizontal imbalances in the distribution of resources. Vertical imbalances arise between the various levels of government due to the asymmetry of taxes and efficiency of tax collection. Horizontal imbalaces are the result of variations in spending capacity and revenue level, between federation units or between municipalities.

According to Nascimento (2010), the main stimuli for subnational governments to acquire resources from financial transfers are: the generation of positive externalities; the reduction of vertical imbalances – reflected in the accumulation of the amount of tax collection in the Union and in the states (to the detriment of the municipalities) –; and the reduction of horizontal – which appears at a time when some jurisdictions become more developed than others (being essential to direct incomes from more developed to less developed places). Thus, we identified that such transfers have as an essential characteristic to help improve the quality of life of the population, allowing socioeconomic growth and reducing inter and intra-regional disparities.

Silva and Silva (2018) explain that one of the forms of sharing revenue among the federative entities is the FPM, which is a type of intergovernmental transfer in which financial resources are transferred from the Union (Federal Government) to the Brazilian municipalities, provided for in the Federal Constitution, article 159, I, b and d:

Article 159. The Union will deliver:

> I - of the proceeds from the collection of taxes on income and proceeds of any nature and on industrialized products, 49% (forty-nine percent), as follows:
> b) twenty-two and five tenths percent to the Municipal Participation Fund;
> d) one percent to the Municipal Participation Fund, which will be delivered in the first ten months of December of each year (Constitution of the Federative Republic of Brazil, 1988).

In other words, these are funds that are constitutionally established, whose composition is composed of the resources collected from the IPI and the IR. Of its total value, 10% is allocated to the state capitals, 86.4% goes to municipalities that are not capitals and 3.6% is to municipalities with large populations (Mendes, Miranda & Cosio, 2008).

In general, regarding the municipalities' own collection capacity, intergovernmental transfers have generated some unfavorable results. Among the main points, we observed that the growth of expenditures does not always result in an increase in per capita revenue; municipalities have not adequately taken advantage of their tax efficiency, often falling short of the collection potential; and, although the central government has made efforts to reduce fiscal inequalities, transfers, which are one of the main tools used, have proven to be insufficient. In addition, unfavorable partisan political impacts influence the distribution of transfers from states to municipalities, often leading municipal managers not to tax appropriately (Passos & Nascimento, 2018).

2.2 Flypaper Effect

The literature that studies the behavior of public spending indicates that transfers open space for the undergrowth of the costs of regional public goods and for the unnecessary growth of their demand. This problem is recognized in the literature as the flypaper effect, which reveals how the increase in transfers induces growth in public spending greater than the growth in taxpayer income (Santos, 2018).

According to Inman (2008), analyzing this effect is essential because it is a matter of policy, therefore, understanding how the governments favoring these resources allocate their expenditures to the design of a competent fiscal policy. In addition to being a matter of knowledge, understanding the reason for subnational government spending provides valuable clarification on government policy priorities.

Romer and Rosenthal (1979) argue that the flypaper effect results from the excessive influence practiced by political groups that enhance estimates, or rather, the bureaucratic form provides for a cooperative conduct between politicians and bureaucrats who would act to their advantage, increasing public spending.

According to Fossett (1990), the flypaper effect appears in the face of indecision and inconsistency regarding transfer revenues, as well as the counter-risk performance of regional bureaucrats. For Roemer and Silvestre (2002), the influence of the flypaper effect would not be an imbalance, but a determination of patterns of political-economic balance.

According to Salto (2013), the flypaper effect is the difference studied between the growth of public spending derived from federal transfers to the subnational entity and the growth of per capita income in the region. In other words, the study of the flypaper effect intends to detect the objectives for which certain transfers cause a growth in public spending greater than the development of per capita income. The hypothesis of these studies is the allegation that the resources would be subdivided and would need to provide the greatest achievable benefit to the citizens, which would have to be portrayed in the behavior, simultaneously with that of the per capita income, in correspondence to the spending attributed by the local instances.

It is noteworthy that the flypaper effect has been proven in several investigations that establish a relationship between own revenue, intergovernmental transfers, and public spending, in the municipal context, as observed in the studies by Almeida and Ribeiro (2018), Caliman et al. (2024), Lima, Dal-Comuni and Lima (2023), Luz et al. (2022) and Reis, Abrantes and Brunozi (2022). The studies indicated that government transfers can encourage an increase in municipal spending, which negatively impacts the balance of local governments' accounts.

2.3 Related studies

There are several studies in the literature that investigate the existence of the flypaper effect. Inman (2008) initially classified such an effect as an anomaly, testing three possible explanations. Firstly, it would be a data problem, because the research misclassified conditional transfers as lump sum. The second point involves econometric problems, such as the mistaken specification of the model, ignoring the relevant variables. Third, it is about a problem of specification: either the median voter fails to observe the unconditional transfer, or, when he has observed it, he has misunderstood the impact on the average price of public goods and services. Finally, he indicates that none of these three hypotheses has been fully explained by empirical evidence.

Oates (1988) even stated that the flypaper effect is one of the possibilities of fiscal illusion and showed that no type of fiscal illusion is necessary to produce such an effect. For example, Romer and Rosenthal (1979) showed that where budget control models are established, there is a high possibility of excessive public spending. Those responsible for the budget will use unattractive budget alternatives (higher public spending). From the point of view of voters, the more attractive one can still be considered a reversal of the harmful situation of the less attractive one. This can cause a worst-budget correction. Therefore, Oates (1988) argued for the need for more empirical evidence on the flypaper effect.

Mattos, Rocha and Arvate (2011) suggested reinterpreting the traditional theory of the flypaper effect, believing that a larger change will lead to a decrease in the efficiency of government spending related to local taxation. The authors made a cross-sectional analysis of Brazilian cities in 2004, finding that the transfer to Brazilian municipalities would have a negative impact on the efficiency of tax collection and a positive impact on private income, that is, they empirically verified the opposite of the flypaper effect.

Costa and Castelar (2015) verified the occurrence of the flypaper effect using autoregressive vector techniques and quantile regression model, both in panel data versions. We conducted the study from samples that include information on revenue, GDP, population, current transfers and expenditures, for 5,293 Brazilian municipalities, in the period from 1999 to 2009. The results showed that the conditions to prove the practice of the flypaper effect by the municipal public administration were not observed. The authors also found that the effect of transfers on expenditures is not only reflected in the overall analysis, but also in different distribution quantiles.

Almeida (2015) used panel data for a sample of 5,507 Brazilian municipalities to verify the occurrence of the flypaper effect, from 2002 to 2010. The author did not limit herself to verifying the existence of the phenomenon in finances, but also analyzed whether it undergoes changes due to the various types of expenses. The results pointed to the existence of this effect on municipal finances and, in general, its implication in the various items of expenses analyzed.

Almeida and Ribeiro (2018) analyzed municipal public finances, regarding the impacts of FPM and ICMS transfers on local expenses, and, for this, they were based on the study of the flypaper effect. We conducted the analysis in 5,507 municipalities, for the period from 2000 to 2010, using panel data with spatial correction. The main results indicated that the impact of the transfer on expenditure is greater than on own revenue, and in less concentrated areas, the effect is more severe. In addition, transfers have a greater impact on current expenditures than on capital expenditures, which indicates that the behavior of municipal public finances needs to be changed in order to stimulate more investment.

Winkler (2018) checked whether there was evidence to support the hypothesis that the flypaper effect occurred in the municipalities of Rio Grande do Sul. In order to estimate the econometric model of panel data for 413 municipalities, we used the budget data of the municipalities of Rio Grande do Sul, the municipal GDP, the total population (youth and elderly). We found evidence on the hypothesis that the effect occurs for the municipalities analyzed. The results show that positive changes in the municipal GDP generate variations in the same direction for total and current expenditures, but in the opposite direction for capital and investment expenditures. Unlike the literature, the figures on intergovernmental transfers indicate that they lead to larger increases in investment spending.

Table 1 presents a summary of some recent studies that analyze the flypaper effect in municipalities.

Table 1 – Summary of some recent studies related to the topic

Authorship	Goal	Conclusion
Pacheco and Saiani (2021)	To investigate whether conditional and unconditional transfers affect Brazilian municipal public expenditures in a heterogeneous way.	Unconditional transfers result in greater capture of resources.
Trevizan (2021)	To assess how the sources of current municipal revenues influence the quality of public spending in the municipalities of Rio Grande do Sul, with emphasis on the dependence of the municipalities regarding the FPM.	In smaller municipalities, dependence on the FPM is negatively related to investment expenditures, while in larger municipalities, this relationship is weak or non-existent, suggesting that dependence on the FPM impacts the quality of public spending.
Luz et al. (2022)	To examine the occurrence of the flypaper effect in the transfers of voluntary transfers from the Union to Brazilian municipalities.	The flypaper effect on capital budget expenditures, which increased beyond the capacity of municipalities to maintain installed assets.
Ferreira and Serrano (2022)	To analyze the existence and causes of the flypaper effect in Brazilian states and municipalities, between the years 2000 and 2018.	A significant flypaper effect in the states, especially in those with greater financial autonomy, as well as in municipalities with more than 50 thousand inhabitants, especially in the Southeast region.
Reis et al. (2022)	To study the impact of economies of scale on the manifestation of the flypaper effect in Brazilian municipalities.	The presence of the flypaper effect in municipal spending has been confirmed, but the economy of scale helps to reduce or even eliminate it, especially in aggregate spending, administration and health.
Pereira, Matos, Bender and Medeiros (2022)	To investigate the impact of FPM transfers on municipal expenditures in Rio Grande do Sul, from 2008 to 2016.	FPM transfers have a greater influence on municipal expenditures than other budget revenues, with the flypaper effect being more pronounced in smaller municipalities.
Lima et al. (2023)	To analyze how the flypaper effect, resulting from voluntary transfers of financial resources, impacts the efficiency of municipalities in Paraná in tax collection, in the years 2018 and 2019.	An inverse relationship between the voluntary transfers received and the efficiency in fundraising, corroborating the implications of the flypaper effect.
Caliman et al. (2024)	To investigate how the flypaper effect is present in the efficiency of local tax collection in the municipalities of the state of Espírito Santo.	The increase in untied transfers is related to a decrease in the GDP per capita of the municipalities, indicating the presence of the flypaper effect.

Source: Prepared by the authors.

Studies on the flypaper effect reveal a diversity of results, with evidence both for and against the presence of this phenomenon in municipal public finances. While some research confirms that unconditional transfers, such as FPM, can lead to excessive spending increases, especially in current expenditures, others suggest that the effect can be mitigated by factors such as budget control, the financial autonomy of municipalities, or economies of scale. In addition, the heterogeneity of the effects, observed in different regions and population groups, indicates that the flypaper effect is not uniform and that local fiscal management plays a crucial role in defining the effectiveness and quality of the use of public resources.

3 METHODOLOGICAL PROCEDURES

3.1 Units of Analysis and Time Frame

In order to assess the effect of FPM transfers on public spending, the units of analysis considered were the municipalities in the state of Minas Gerais, which total 853, according to data from the Brazilian Institute of Geography and Statistics (IBGE, 2019a).

The period studied comprised the years 2008 to 2018. The choice of this time frame is related to the availability of data necessary to understand the flypaper effect.

3.2 Panel Data Model

For the purpose of the study, we chose the regression model with panel, which combines time series with cross-section observations. Panel data have the advantage of presenting more informative elements, with greater variability, in addition to circumventing the problem of collinearity between variables and offering degrees of freedom, as well as better efficiency (Gujarati & Porter, 2011).

We used the dynamic panel model developed by Arellano and Bond (1991) and improved by Arellano and Bover (1995) and Blundell and Bond (1998). The GMM System estimation method used in this work is related to the addition to the GMM in difference to the initial equation in level, increasing its capacity, due to the existence of more instruments. This increase in capacity is due to the fact that the GMM System estimator is similar to the Arellano-Bond estimator (1991) – GMM difference –, but adding an additional hypothesis: the first difference of the instruments is not correlated with the fixed effects, which allows to increase the number of instruments and gain in efficiency.

Although this method allows the inclusion of instruments (lagged variables/and levels) to control endogeneity, their consistency is conditioned by the absence of serial correlation of the error term and its validity. The most suitable tests to observe these two conditions are: the Arellano-Bond (1991) autocorrelation test of first and second order and the validity test of the Sargan (1958) and Hansen (1982) instruments.

In the tests devised by Arellano and Bond (1991), the absence of second-order correlation is assumed in the errors of first difference. In this sense, the null hypothesis of the test is that the transformed errors are uncorrelated. Thus, we intended to reject the null hypothesis in the first-order test. On the other hand, in the second-order hypothesis, we expected that the null hypothesis will not be rejected, evidencing the inexistence of autocorrelation. Evidence of second-order autocorrelation would invalidate the model specification, given that the consistency of the estimators is affected (Louzano, Abrantes, Ferreira, & Zucolotto, 2019; Santos, 2016).

The Hansen-Sargan test verifies whether the instruments are valid. Its null hypothesis analyzes whether the instrumental variables are uncorrelated with the error term. Thus, the rejection of the null hypothesis indicates that at least one instrumental variable is not exogenous (Santos, 2016).

Based on the above, the estimated model in this study proposes to explain the effect of FPM transfers on the expenditures of the municipalities of Minas Gerais, according to Equation 1:

$$DOpc_{it} = \gamma DOpc_{i,t-1} + \beta FPMpc_{it} + \theta X_{it} + \alpha_i + \nu_t + \varepsilon_{it} \qquad (1)$$

i = 1, ..., 677 municípios
t = 2008, ..., 2018

where: is the per capita budget expenditure of municipality i, in period t; represents the lagged dependent variable; is the value of the transfer of the FPM per capita of municipality i, in period t; are the control variables; , and are the unknown parameters to be estimated by regression; is the specific effect not observed in each municipality; corresponds to the specific effect on time that does not vary between municipalities; and is the random error.

The variable of interest is the transfer of the FPM, which refers to a redistributive transfer from the federal government to the municipality. This variable is expected to have a positive impact on the dependent variable. This means that constitutional intergovernmental transfers, of a lump sum nature, have a more expansive impact on municipal spending (Almeida & Ribeiro, 2018; Cossio & Carvalho, 2001; Costa & Castelar, 2015; Santos, 2018; Winkler, 2018).

The monetary variables were transformed into logarithms and their values adjusted by the General Price Index (IGP-DI), of the Getúlio Vargas Foundation (FGV, 2020), on December 31, 2018.

Table 2 presents a summary of the variables used in this study.

Table 2 - Description of the variables used in the regression model with panel data

Variable	Characterization	Expected Effect	Theoretical Basis	Source
$DOpc_{(t-1)}$	Lagging per capita budget expenditure	+	Almeida and Ribeiro (2018), Gobetti and Orair (2015), Louzano et al. (2019) and Santos (2018)	STN (2018b)
FPMpc	Municipal Participation Fund per capita	+	Almeida and Ribeiro (2018), Cossio and Carvalho (2001), Costa and Castelar (2015), Santos (2018), Fisher (1982) and Winkler (2018)	
RTpc	Tax Revenue per capita	+	Peacock and Wiseman (1979)	
IPIEXPpc	Tax on Industrialized Products – Exports per capita	+	Birth (2010)	
IPVApc	Motor Vehicle Property Tax per capita	+	Santos (2018) and Winkler (2018)	
ICMSpc	Tax on the Circulation of Goods and Provision of Services per capita	+	Almeida and Ribeiro (2018), Santos (2018) and Winkler (2018)	
GDP pc	Gross Domestic Product per capita	+	Almeida and Ribeiro (2018), Costa and Castelar (2015), Vieira et al. (2017) and Winkler (2018)	IBGE (2019b)
DPOP20000	Dummy representative of municipalities with up to 20 thousand inhabitants	+/-	Almeida and Ribeiro (2018), Costa and Castelar (2015) and Santos (2018)	
Time Dummies (vt)	Representative dummies of years to capture the specific effect	+/-	Roodman (2006)	-

Source: Prepared by the authors.

It was necessary to exclude some municipalities from the sample, because, for some periods, they did not present data for the analysis of the explanatory variables considered in the model. Due to this unavailability of numbers, the final sample totaled 677 municipalities, corresponding to approximately 90.38% of the total population of Minas Gerais. Thus, of the 853 municipalities, 176 were eliminated from the database (20.76%). Of this total, seven were due to the lack of information on Tax Collection (two) and Budget Expenditure (five). The other 169 municipalities were excluded for not presenting IPVA and ICMS data.

4 RESULTS AND DISCUSSIONS

4.1 Descriptive Analysis

Considering that the object of analysis of this research is the budget expenditure, Table 3 shows its performance by year analyzed.

Table 3 - Descriptive Statistics of Public Expenditure per capita, in the period from 2008 to 2018

Year	Mean	Standard deviation	Minimum	Maximum	Annual variation (%)
2008	2.866,85	1.364,65	340,69	12.106,72	-
2009	2.863,12	1.349,72	1.238,04	11.778,75	-0,13
2010	2.979,30	1.359,97	1.220,27	16.020,51	3,90
2011	3.044,17	1.442,29	1.192,43	15.601,88	2,13
2012	3.066,53	1.408,71	147,52	15.527,88	0,73
2013	3.056,21	1.358,54	1.378,18	14.827,24	-0,34
2014	3.088,88	1.352,29	1.438,14	16.715,06	1,06
2015	3.107,03	1.319,29	1.415,27	14.449,77	0,58
2016	3.092,28	1.355,35	1.241,88	16.317,77	-0,48
2017	3.061,94	1.378,83	224,90	16.289,90	-0,99
2018	3.199,36	1.421,27	43,80	15.046,37	4,30
Overall Mean	**3.038,70**	**1.376,58**	**43,80**	**16.715,06**	

Source: Survey Result.

Table 3 shows that the average budget expenditure was R$ 3,038.70 and a standard deviation of R$ 1,376.58. When checking the mean, we noted that, from the first to the last year, it showed a growth of approximately 1.00% per year, from R$ 2,866.85 to R$ 3,199.36 – the highest average expenditure in the period studied. Based on the data, we observed that the municipalities of Minas Gerais analyzed spent a minimum amount equal to R$ 43.80, in 2018, in Conselheiro Lafaiete, with 125,421 inhabitants, and a maximum of R$ 16,715.06, in 2014, for the municipality of Serra da Saudade, which registers 815 inhabitants.

Table 4 below shows the individual performance of the FPM per capita of the municipalities in the sample, by year analyzed.

Table 4 - Descriptive Statistics of the FPM per capita, in the period from 2008 to 2018

Year	Mean	Standard deviation	Minimum	Maximum	Annual Variation (%)
2008	1.390,22	968,43	4,52	9.736,81	-
2009	1.369,91	932,72	114,50	8.539,44	-1,48
2010	1.402,40	967,04	130,70	10.648,87	2,32
2011	1.442,57	1.115,48	130,58	14.959,52	2,78
2012	1.427,12	971,09	136,45	10.800,21	-1,08
2013	1.427,47	986,06	129,61	9.741,55	0,02
2014	1.458,05	1.143,52	130,02	13.004,50	2,10
2015	1.453,21	1.062,44	130,42	11.156,51	-0,33
2016	1.447,19	1.031,81	127,68	10.728,53	-0,42
2017	1.567,50	2.268,73	112,07	48.443,52	7,68
2018	1.678,70	1.612,41	7,99	10.808,73	6,62
Overall Average	**1.460,39**	**1.250,67**	**4,52**	**48.443,52**	

Source: Survey Result.

From the data in Table 4, it is possible to observe that, when calculating the Geometric Growth Rate of the FPM per capita, for the period studied, no changes were observed in the transfer of transfers to the municipalities. According to the results, the municipal entities obtained a minimum value equal to R$ 4.52 in 2008, registered in Camacho, with approximately 3 thousand inhabitants. We noted that the territory of Consolação, with 1,810 inhabitants, obtained a maximum value of R$ 48,443.52 in 2017. The FPM showed a mean value of R$ 1,460.39 and a standard deviation of R$ 1,250.67.

In view of this, it is clear that the current criterion used for the distribution and transfer of FPM resources does not have an incentive for efficient management. Therefore, very small municipalities end up benefiting from the criterion of distribution of resources, and the first distribution range is municipalities with up to 16,980 inhabitants. Thus, one with a population of 5,000 inhabitants, for example, will receive the same amount from the fund as another with twice the population (Massardi, 2014).

4.2 Effect of the FPM on Municipal Public Expenditures

Table 5 presents the results for the estimated models, as well as the aforementioned tests for choosing between them. In order to generate robust estimates, the model was estimated by the GMM System, Ordinary Least Squares (OQ) and Fixed Effects. As a result of the lagged expenditure, we found that the coefficient found is between the limits obtained through MQO and Fixed Effects, which indicates the robustness of the estimated dynamic model.

Considering that the dynamic panel is sensitive to the autocorrelation of the residuals, we applied the first and second order autocorrelation test of Arellano and Bond (1991). Based on the results, this test rejects the null hypothesis of absence of first-order autocorrelation, but does not reject the second-order hypothesis, as desired in the estimation. The tests conducted on the GMM System model show that its properties are adequate.

The use of the GMM System estimation method with instrumental variables was appropriate because it allows endogeneity control. The use of instruments also requires tests to verify their validity, so that they satisfy the conditions of the moment, that is, they are not correlated with the error term. In this case, the tests applied were those of Sargan and Hansen, in which the null hypothesis of joint validity of the conditions of moment should not be rejected. According to the results, when applying the Sargan and Hansen tests, the null hypothesis is not rejected, indicating that the instruments used are valid. In addition, we conducted the Difference-in-Hansen test, which assesses the exogeneity of groups of instruments, i.e., whether they are exogenous. Once again, the hypothesis is not rejected, implying adequacy of the instruments.

Table 5 - Results of Panel Data Model Estimates

Variables	GMM *System*	MQO	Fixed Effect
Total Expenses lagging behind	0,1144**	0,5073***	-0,0315*
	(0,0564)	(0,0285)	(0,0193)
FPM	0,0718**	0,1260***	0,0198***
	(0,0301)	(0,0098)	(0,0050)
GDP	-0,7530***	-0,0454***	0,1225***
	(0,1848)	(0,0074)	(0,0439)
Tax Revenue	0,1963***	0,0708***	0,1013***
	(0,0317)	(0,0058)	(0,0074)
IPI – Export	0,0758***	0,0475***	0,0617***
	(0,0171)	(0,0091)	(0,0083)
IPVA	0,1704***	-0,0031NS	0,0696***
	(0,0479)	(0,0044)	(0,0067)
ICMS	0,6534***	0,1530***	0,2013***
	(0,0976)	(0,0167)	(0,0152)
Population size dummy	-0,0951***	-0,0273***	-0,0017NS
	(0,0350)	(0,0065)	(0,0254)
Constant	8,0460***	2,0907***	4,7004***
	(1,1794)	(0,1301)	(0,1942)

Number of instruments	36	Sargan's test	*p-value* = 0,082
First-order autocorrelation	*p-value* = 0,000	Hansen's test	*p-value* = 0,223
Second-order autocorrelation	*p-value* = 0,620	Difference-in-Hansen test	*p-value* = 0,150

Source: Survey Result.

Notes: i. *** Significant at 1%; ** Significant at 5%; * Significant at 10%; NS not significant; ii. Two-stage systemic GMM estimates, with sample correction proposed by Windmeijer (2005) for bias in standard errors (in parentheses); iii. 677 municipalities were considered, in the period from 2008 to 2018; iv. In the estimate, time dummies were included , in which the year 2009 was a reference. The years that presented significant and positive coefficients were 2010, 2011, 2014 and 2016; and v. In the estimation of the GMM System, the collapse option was used, since estimates with larger numbers of instruments presented p-values lower than 10% in the Hansen's and Difference-in-Hansen tests.

According to the results in Table 5, from a statistical point of view, the explanatory variables used in the study were significant, being relevant to explain the budget expenditures of the municipalities.

Analyzing the results of the regression model for panel data, we verified that the FPM variable exhibited a positive and significant coefficient. Transfers from the FPM per capita have a positive impact on total expenditures, where a variation of 1% in the volume of transfers from the fund increases the volume of total expenditures per capita by 0.07%, showing that the result found is consistent with expectations. Thus, this indicates that, by receiving more of this type of resource, municipal governments tend to increase their spending.

In the period from 2008 to 2018, federal transfers related to the FPM collaborated for the expansion of public expenditures in the municipalities of Minas Gerais studied. This expansive effect can result in an increase in public services and investments in municipalities, bringing relevant social benefits, such as improved quality of life and infrastructure. However, it can also lead to challenges, such as inefficient spending and excessive dependence on federal transfers, which can undermine long-term financial sustainability.

Nascimento (2010) comments that transfers, such as the FPM, have a discouraging effect on the collection of municipalities and, consequently, have a greater representativeness in the composition of the municipal financing structure, especially in small municipalities. In this sense, the analysis highlights the importance of reformulating Brazilian federalism, through modifications in the tax system, the redefinition of the taxes of each of the federated entities and the redistribution of resources through transfers. Lima et al. (2023) state that the transfer of resources from the federal government to municipalities reduces the effort required to achieve the budget's collection goals, which reflects the characteristics of the flypaper effect.

The results of the present research are similar to those found by Santos (2018), Vieira et al. (2017) and Winkler (2018), who found that the receipt of intergovernmental transfers tends to increase public spending by a higher amount. We are supposed to highlight that, in both analyses, the set observed was the totality of Brazilian municipalities. Reis et al. (2022) state that the relationship between transfer resources and total expenditures can be minimized with economies of scale.

In relation to the lagged dependent variable ($DOpc_{(t-1)}$), we noted that the coefficient was significant and positive, confirming the dynamic character of public spending. Thus, it is proven that the past values of the explained variable exert an influence on its current values. The implication of this result is that municipalities may face difficulties in adjusting their spending after periods of increase, due to the dynamic and persistent nature of expenditures. This suggests that even as municipalities try to reduce costs, past spending continues to impact their finances, making budgetary adaptation difficult. This behavior may harm theirability to balance the bills.

The variable GDP per capita (GDP pc) was statistically significant, but presented a negative coefficient. The results show that spending is increasing, not because of the increase in income, but because of the expansive effect of transfers. Thus, analyzing together the coefficients of the variables GDP pc and FPMpc, it is proven that there was the presence of the flypaper effect on municipal expenditures. Therefore, the negative coefficient of GDP per capita may suggest that median voters in richer municipalities demand fewer public services than poorer ones and, therefore, less public spending. According to Martins (2020), this result can be justified by the fact that, in industrialized municipalities and, for the most part, richer, the political preference of the electorate, which generates the composition of expenditures, may determine not spending on public hospitals and schools, for example, if the largest portion of their voters has access to a private service.

In relation to the variable Tax Revenue, which was also statistically significant and presented a positive coefficient, we observed that an increase in the municipalities' own collection contributes to the increase in budget expenditures. Specifically, an increase of 1% results, on average, in an expansion of 0.19%, respectively, keeping the other variables constant. This indicates that the greater collection capacity allows municipalities to increase their expenses, reflecting a direct relationship between increased revenue and growth in public spending.

In this sense, Massardi and Abrantes (2016) comment that, in economic merit, the search for a system that takes advantage of the available tax base, the implementation of mechanisms that bar incompatibility with expenditures, and the implementation of fiscal effort as an integral part of the criteria for transferring resources would contribute to the local government increasing its own collection and having more resources, in order to promote development in the region.

The ICMS variable (ICMSpc) had a positive impact of greater magnitude on expenses than Tax Revenue. Therefore, increases in the values of these variables cause increases in public spending in the municipalities of Minas Gerais. The transfer of ICMS, according to Mendes et al. (2008), is pro-cyclical, given that it rises in times of economic expansion, revealing greater expenditures by the states and more resources for the municipalities, which drives an increase in expenditures. On this aspect, Soares, Gomes and Toledo (2011) understand that taxes on goods and services are extremely important in the country's economy, since they interfere in the productive activity of the various economic sectors.

As for the variable IPVA (IPVApc), which represents a transfer from the state to the municipalities, we observed that it was statistically significant and presented the expected signal in the estimation of the GMM System model. This indicates that, as the transfer of resources from the IPVA increases, municipal spending increases by 0.17%, with the other variables remaining constant. This result suggests that municipalities can use these resources to finance new investments or expand public services, which can benefit the local population. However, it can also generate challenges, if spending increases without proper control, creating a dependence on state transfers to maintain expenses.

The transfers of the IPI – Export per capita showed a positive impact on total expenditures, in which a variation of 1% in its volume increases that of total expenditures per capita by 0.0758%. The finding shows that this type of transfer contributes to increasing municipal spending in the areas for which they were destined.

In the modeling, we considered the population size dummy, representative of municipalities with less than 20 thousand inhabitants. Regarding the behavior of this variable, its coefficient was significant and presented a negative sign, indicating that the expenditures per inhabitant of these municipalities are lower in relation to those with more inhabitants. The negative results may be related to the fact that the municipality with a smaller population contingent demands less volume of expenditures to meet its needs. On the other hand, the most populous demand a greater volume of spending to do so.

The results observed are in line with the characteristics of the fiscal illusion associated with the flypaper effect, corroborating the findings of studies, such as those by Almeida (2015), Almeida and Ribeiro (2018), Lima et al. (2023), Luz et al. (2022) and Reis et al. (2022), which also identified the occurrence of this effect, using municipal data. These studies indicate that the relationship between resource transfers and increased public spending is a common feature in municipal contexts, reinforcing the need for more efficient fiscal management, to avoid excessive dependence on government transfers and ensure financial sustainability.

5 FINAL REMARKS

The general objective of this research was to assess the effect of the FPM on the public spending of the municipalities of Minas Gerais. For this, we analyzed 677 municipalities in Minas Gerais, during the period from 2008 to 2018. We conducted the data treatment through its exploratory analysis and econometric regression models for dynamic panel data.

The results of the study indicated a significant and positive relationship between the FPM and municipal spending, suggesting that transfers from the fund are more subject to resource capture, presenting positive impacts on municipal public spending. In other words, fiscal transfers have implications for public spending. This result points to the existence of the flypaper effect for the municipalities of Minas Gerais, in the period of analysis. The presence of this effect is mainly due to the fiscal federalism adopted in Brazil, which makes municipalities more dependent on intergovernmental transfers.

The findings showed that the dependent variable presents a dynamic behavior, with its past value being related to the present value. The variables Tax Revenue, IPI – Export, IPVA and ICMS had a positive influence on expenditures. The GDP variable was significant, but, with the opposite sign to the expected one, with regard to the flypaper effect, and the population size dummy showed that budget expenditures per inhabitant are lower in municipalities with a population of less than 20 thousand inhabitants.

These results suggest the importance of public agents rethinking the criteria for redistributing FPM resources, in a way that is more consistent with the reality experienced by the municipalities, enabling a fairer and more equitable distribution.

The limitations of the study are the small sample size – which did not include all municipalities in Minas Gerais – and the limited time frame, due to the absence of data necessary for its realization, since these are of a secondary nature and, until the conclusion of the study, some variables were only available until the period of 2018.

For future research, we suggest to deepen the analysis by inserting new variables, such as geographic regions of the state, in order to identify whether the effects on public spending vary according to the location of the municipalities. It is appropriate to extend the analysis to other periods, expanding the time horizon, in order to capture the effects highlighted in the literature as influential in the expansion of public spending.

REFERENCES

Almeida, E., & Ribeiro, E. A. (2018, dezembro). Transferências de renda intergovernamentais e seus impactos sobre as despesas de capital e despesas correntes nos municípios brasileiros. Anais do Encontro Nacional de Economia, Rio de Janeiro, RJ, 44.

Almeida, R. N. de. (2015). Os efeitos das transferências intergovernamentais nas finanças públicas municipais brasileiras. Revista do Tribunal de Contas do Estado de Minas Gerais, 33(4), 52-72. Retrieved from https://revista.tce.mg.gov.br/revista/index.php/TCEMG/article/view/50/101

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The Review of Economic Studies, 58(2), 277-297. https://doi.org/10.2307/2297968

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics, 68*(1), 29-51. https://doi.org/10.1016/0304-4076(94)01642-D

Bailey, S. J., & Connolly, S. (1998). The flypaper effect: identifying areas for further research. *Public choice, 95*(3), 335-361. https://doi.org/10.1023/A:1005053921709

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics, 87, 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8

Caliman, D. R., Santos, A. D. S. dos, Pitanga, E. C., Guia, G. A. M., & Darós, L. da P. (2024). Efeito Flypaper: uma análise nos municípios do estado do Espírito Santo. *ConTexto - Contabilidade Em Texto*, *24*(57), 51–65. Retrieved from https://seer.ufrgs.br/index.php/ConTexto/article/view/130643

Chakraborty, P. (2003). *Unequal Fiscal Capacities Across Índia States: how corrective is the fiscal transfer mechanism*. United Nations University Centre. Tokio.

Constituição da República Federativa do Brasil de 1988. (1988). Retrieved from http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

Cossio, F. A. B. (2002). *Ensaios sobre federalismo fiscal no Brasil*. (Tese de doutorado). Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, RJ, Brasil. Retrieved from http://www2.dbd.puc-rio.br/pergamum/tesesabertas/9716215_02_cap_03.pdf

Cossio, F. A. B., & Carvalho, L. M. de. (2001). Os Efeitos Expansivos das Transferências Intergovernamentais e Transbordamentos Espaciais de Despesas Públicas: evidências para os Municípios Brasileiros: 1996. Pesquisa e Planejamento Econômico, 31(1), 75-124. Retrieved from http://repositorio.ipea.gov.br/bitstream/11058/5064/1/PPE_v31_n01_Efeitos.pdf

Costa, R. F. R., & Castelar, L. I. de M. (2015). O impacto das transferências constitucionais sobre os gastos dos municípios brasileiros. *Revista Análise Econômica, 33*(64), 171-189. https://doi.org/10.22456/2176-5456.51004

Ferreira, L. O. G., & Serrano, A. L. M. (2022). Os efeitos das transferências nos estados e municípios brasileiros: a construção de um índice flypaper. *Cadernos de Finanças Públicas*, *22*(01). https://doi.org/10.55532/1806-8944.2022.172

Fisher, R. C. (1982). Income and grant effects on local expenditure: The flypaper effect and other difficulties. *Journal of urban Economics, 12*(3), 324-345. https://doi.org/10.1016/0094-1190(82)90021-3

Fossett, J. W. (1990). On confusing caution and greed: A political explanation of the *flypaper effect. Urban Affairs Quarterly, 26*(1), 95-117. https://doi.org/10.1177/004208169002600105

Fundação Getúlio Vargas. (2020). *Indicadores de preços.* Rio de Janeiro: FGV. Retrieved from https://portalibre.fgv.br/indices-de--precos

Gobetti, S. W., & Orair, R. O. (2015). Política fiscal em perspectiva: o ciclo de 16 anos (1999-2014). *Revista de Economia Contemporânea*, *19*(3), 417-447. https://doi.org/10.1590/198055271934

Gujarati, D. N., & Porter, D. C. (2011). *Econometria básica*. (5a ed., D. Durante, M. Rosemberg, & M. L. G. L. Rosa, Trad.). Porto Alegre: Mc Graw Hill. (Obra original publicada em 2008).

Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. Econometrica, 50(4), 1029-1054. https://doi.org/10.2307/1912775

Inman, R. P. (2008, dezembro). The Flypaper Effect. [Working Paper n. 14579]. National Bureau of Economic Research, Cambridge. DOI 10.3386/w14579

Instituto Brasileiro de Geografia e Estatística (2019a). Estimativas da População. Retrieved from https://www.ibge.gov.br/estatisticas/sociais/populacao/9103-estimativas-de-populacao.html?edicao=17283&t=destaques

Instituto Brasileiro de Geografia e Estatística (2019b). *Produto Interno Bruto dos Municípios.* Retrieved from https://www.ibge.gov.br/estatisticas/economicas/contas-nacionais/9088-produto-interno-bruto-dos-municipios.html?edicao=18021&t=publicacoes

Lee, L., & Vuletin, G. (2012) The Flypaper and Teflon Effect: evidence from China. *Modern Economy, 3*, 811-816. http://dx.doi.org/10.4236/me.2012.37103

Lei n. 5.172, de 25 de outubro de 1966. (1966). Dispõe sobre o Sistema Tributário Nacional e institui normas gerais de direito tributário aplicáveis à União, Estados e Municípios. Retrieved from https://www.planalto.gov.br/ccivil_03/leis/l5172compilado.htm

Lima, S. S. F., Dal-Comuni, S. S. L., & Lima, F. F. (2023). O Efeito Flypaper e a Preguiça Fiscal: uma análise da eficiência de arrecadação municipal em relação às transferências voluntárias recebidas. Contabilidade Gestão e Governança, 26(1), 92–120. https://doi.org/10.51341/cgg.v26i1.3018

Liparizi, F. B. (2006). *Descentralização fiscal no Brasil: evolução e tendências recentes.* (Dissertação de mestrado). Universidade de

Brasília, Brasília, DF, Brasil. Retrieved from https://repositorio.unb.br/bitstream/10482/4896/1/2006_fabricio%20bacelar%20liparizi.pdf

Louzano, J. P. de O., Abrantes, L. A., Ferreira, M. A. M., & Zuccolotto, R. (2019). Causalidade de Granger do índice de desenvolvimento socioeconômico na gestão fiscal dos municípios brasileiros. Revista de Administração Pública, 53(3), 610-627. https://doi.org/10.1590/0034-761220180139

Luz, E. O. da, Nossa, S. N., Monte-mor, D. S., & Bezerra, J. E., F. (2022). Transferências Voluntárias e o Efeito *Flypaper*. *Administração Pública e Gestão Social*, *14*(3). https://doi.org/10.21118/apgs.v14i3.12321

Martins, F. S. (2020). *Efeito expansivo das transferências intergovernamentais e a interdependência espacial dos gastos públicos nos municípios brasileiros.* (Dissertação de mestrado). Universidade Federal do Ceará, Fortaleza, CE, Brasil. Retrieved from https://repositorio.ufc.br/handle/riufc/53604

Massardi, W. de O., & Abrantes, L. A. (2016). Dependência dos Municípios Mineiros em relação ao Fundo de Participação dos Municípios. *Revista Eletrônica Gestão & Sociedade, 10*(27), 1397-1416. https://doi.org/10.21171/ges.v10i27.1963

Massardi, W. de O. (2014). *Esforço fiscal e desempenho socioeconômico dos municípios mineiros.* (Dissertação de mestrado). Universidade Federal de Viçosa, Viçosa, MG, Brasil. Retrieved from https://www.locus.ufv.br/handle/123456789/1997

Mattos, E., Rocha, F., & Arvate, P. (2011). Flypaper Effect Revisited: evidence for tax collection efficiency in Brazilian municipalities. *Estudos Econômicos*, *41*(2), 239- 267. https://doi.org/10.1590/S0101-41612011000200002

Mendes, M., Miranda, R. B., & Cosio, F. B. (2008). *Transferências intergovernamentais no Brasil: diagnóstico e proposta de reforma*. [Texto para Discussão, n. 40]. Brasília, DF: Senado Federal. Retrieved from https://www2.senado.leg.br/bdsf/bitstream/handle/id/94747/Textos%20para%20discussão%2040.pdf?sequence=7

Moraes, D. P. de. (2006). *Arrecadação tributária municipal: esforço fiscal, transferências e Lei de Responsabilidade Fiscal.* (Dissertação de mestrado). Fundação Getúlio Vargas. São Paulo, Brasil. Retrieved from https://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/2421/155046.pdf?sequence=3&isAllowed=y

ÿÿÿÿ*}8±dQ v¶Nascimento, J. dos S. (2010). *Efeito das transferências financeiras sobre os gastos e a arrecadação dos municípios brasileiros.* (Tese de doutorado). Universidade Federal de Viçosa, Viçosa, MG, Brasil. Retrieved from https://www.locus.ufv.br/bitstream/handle/123456789/130/texto%20completo.pdf?sequence=1

Oates, W. E. (1988). On the nature and measurement of fiscal illusion: a survey. *In* Brennan *et al*. (eds.), *Taxation and Fiscal Federalism: essays in Honor of Russel Mathews* (pp. 65-82). Camberra.

Pacheco, C. P., & Saiani, C. C. S. (2021, dezembro). Efeitos das Transferências Condicionais e Incondicionais e da Lei de Responsabilidade Fiscal nas Despesas Públicas: evidências para os Municípios Brasileiros. Anais do Encontro Nacional de Economia, Brasil, 49.

Passos, C. R., & Nascimento, J. C. H. B. (2018, novembro). Fundo de Participação dos Municípios na composição das receitas: um estudo sobre dependência dos municípios piauienses nos anos 2013 a 2016. Anais do Congresso Brasileiro de Custos, Vitória, ES, 25.

Peacock, A. T., & Wiseman, J. (1979). Approaches to the analysis of government expenditure growth. Public Finance Quarterly, 7(1), 3-23. https://doi.org/10.1177/109114217900700101

Pereira, M. M. de, Matos, S. R. A. de, Bender, R. F., & Medeiros, A. P. de (2022). Transferências governamentais e despesas públicas: evidências do efeito *Flypaper* para municípios do Rio Grande do Sul entre 2008 e 2016. *Revista Política e Planejamento Regional, 9*(1), 79-101. Retrieved from https://www.revistappr.com.br/conteudo.php?m=NDE2&l=tx

Reis, A. de O., Abrantes, L. A. & Brunozi, A. C., Jr. (2022, setembro). Análise do efeito flypaper em governos locais brasileiros sob a perspectiva da economia de escala. Anais do Encontro da Associação Nacional de Pós-Graduação e Pesquisa em Administração, online, 46.

Roemer, J. E., & Silvestre, J. (2002). The “Flypaper Effect” Is not an anomaly. Journal of Public Economic Theory, 4(1), 1-17. https://doi.org/10.1111/1467-9779.00085

Romer, T., & Rosenthal, H. (1979). “Bureaucrats vs. Voters: on the political economy resource allocation by direct democracy”. *The Quarterly Journal of Economics, 93*(4),563-587. https://doi.org/10.2307/1884470

Roodman, D. (2006, dezembro). How to do xtabond2: an Introduction to Difference and System GMM in Stata. (Working Paper nº 103). *Center for Global Development*. http://dx.doi.org/10.2139/ssrn.982943

Salto, F. S. (2013). *A economia política das transferências fiscais no Brasil: o Fundo de Participação dos Estados (FPE) contribuiu no processo de redução das disparidades regionais entre 1985 e 2009?* (Dissertação de mestrado). Fundação Getúlio Vargas, São Paulo, Brasil. Retrieved from https://bibliotecadigital.fgv.br/dspace/bitstream/handle/10438/10635/Felipe_Salto_Disserta%c3%a7%c3%a3o_Mestrado_Final.pdf?sequence=9&isAllowed=y

Santos, F. V. D. dos. (2018). Os efeitos expansivos das transferências intergovernamentais e o efeito transbordamento das despesas públicas dos municípios brasileiros: um estudo com dados em painel para o período de 2010-2015. 2018. (Dissertação de mestrado). Universidade Federal do Espírito Santo, Vitória, ES, Brasil. Retrieved from http://repositorio.ufes.br/jspui/bitstream/10/10407/1/tese_10211_Fládia%20Dantas%20-%20dissertação%20final.pdf

Santos, M. A. S. S. (2006). *O Fundo de Participação dos Municípios em Minas Gerais: impactos redistributivos da inclusão da variável PIB municipal no cálculo do rateio.* (Dissertação de mestrado). Escola de Governo Prof. Paulo Neves de Carvalho, Belo Horizonte, MG, Brasil Retrieved from http://tede.fjp.mg.gov.br/bitstream/tede/234/1/Maria%20Aparecida%20Sales.pdf

Santos, R. B. dos. (2016). *A prática da gestão de riscos financeiros e geração de valor ao acionista: um estudo das empresas brasileiras não financeiras.* (Tese de doutorado). Universidade de São Paulo, São Paulo, SP, Brasil. Retrieved from https://www.teses.usp.br/teses/disponiveis/96/96133/tde-20102016-142034/en.php

Sargan, J. D. (1958). The estimation of econometric relationships using instrumental variables. *Econometrica*, *26*(3), 393-415. https://doi.org/10.2307/1907619

Secretaria do Tesouro Nacional (2018a). *Manual de Contabilidade Aplicada ao Setor Público (MCASP)*. Brasília, DF. Retrieved from http://www.tesouro.gov.br/mcasp

Secretaria do Tesouro Nacional (2018b). *FINBRA – Finanças do Brasil – Dados*. Retrieved from https://www.gov.br/tesouronacional/pt-br

Silva, A. D. da, & Silva, A. D. da (2018). Autonomia municipal no federalismo fiscal brasileiro: a eficiência na administração tributária municipal. *Dom Helder Revista de Direito*, 1(1), 19-44. http://dx.doi.org/10.36598/dhrd.v1i1.1414

Soares, M., Gomes, E. do C. O., & Toledo, J. R. de F. (2011). A repartição tributária dos recursos do ICMS nos municípios da Região Metropolitana de Curitiba. *Revista de Administração Pública, 45*(2), 459-481. https://doi.org/10.1590/S0034-76122011000200008

Trevizan, L. E. (2021). *Transferências intergovernamentais e a qualidade no gasto público em municípios gaúchos: um estudo no contexto do federalismo e descentralização fiscal*. (Dissertação de mestrado). Universidade do Vale do Rio dos Sino. Retrieved from http://www.repositorio.jesuita.org.br/handle/UNISINOS/10087

Vieira, M. A., Abrantes, L. A., Ferreira, M. A. M., & Lopes, J. V. S. (2017). Implicações do esforço de arrecadação no desempenho socioeconômico dos municípios de Minas Gerais. *Gestão & Regionalidade, 33*(99), 21-38. https://doi.org/10.13037/gr.vol33n99.3981

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics, 126* (1), 25–51. https://doi.org/10.1016/j.jeconom.2004.02.005

Winkler, K. L. B. (2018). *Efeitos das transferências intergovernamentais sobre as despesas públicas dos municípios do Rio Grande do Sul: uma análise entre os anos de 2002 e 2014*. (Dissertação de mestrado). Universidade Federal do Rio Grande do Sul, Rio Grande do Sul, Brasil. Retrieved from https://editora.pucrs.br/edipucrs/acessolivre/anais/encontro-de-economia-gaucha/assets/edicoes/2018/arquivos/62.pdf

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 4, Pages 55 - 67, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1592

CRCMG CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

PERCEPTIONS OF MUNICIPAL EMPLOYEES INVOLVED IN LEGISLATIVE TRANSPARENCY IN MUNICIPALITIES IN MINAS GERAIS

PERCEPÇÕES DOS SERVIDORES MUNICIPAIS ENVOLVIDOS COM A TRANSPARÊNCIA LEGISLATIVA NAS CIDADES MINEIRAS

This article was accepted and presented at the X Encontro Brasileiro de Administração Pública, held from June 5 to 7, 2023, in Brasília, Brazil.

ABSTRACT

Although the three government branches fall subject to the same laws, there remain differences in their degrees of transparency. Moreover, studies show gaps regarding transparency in municipal legislature as the literature shows a predominance of the evaluations from transparency portals, with few in-depth analyses on this theme. Thus, this study aims to analyze the perception of the employees in the city councils in Minas Gerais about the quality of transparency of their electronic portals. To collect data, a structured questionnaire was applied to the councils in Minas Gerais. In total, 100 responses were obtained from the 853 considered municipalities. The data were analyzed by frequency tables, statistical tests, and the Cronbach's alpha to assess the degree of reliability of the obtained answers. Results showed that some characteristics of respondents influence the evaluation of transparency quality: civil servants with better training, effective agents, employees who have been working longer in their occupation, accountants, and internal controllers showed greater care when assessing transparency issues. The perception of the quality of transparency is associated with the training of civil servants. This socially relevant study can help the council managers in Minas Gerais to improve their transparency policies based on the knowledge of the characteristics and competencies of their staff.

Keywords: Public Transparency. City Councils. Perceptions. Minas Gerais.

RESUMO

Embora os três Poderes do Estado estejam sujeitos às mesmas leis, ainda persistem diferenças nos graus de transparência entre eles. Além disso, há uma lacuna nos estudos quanto à transparência no Legislativo municipal, sendo predominante na literatura as avaliações dos Portais da Transparência, havendo poucas análises em profundidade nessa temática. Portanto, o objetivo deste trabalho é analisar a percepção dos servidores das Câmaras Municipais de Minas Gerais sobre a qualidade da transparência de seus portais eletrônicos. Para a coleta dos dados, foi aplicado um questionário estruturado às câmaras mineiras, sendo obtidas 100 respostas dos 853 municípios considerados. Os dados foram analisados utilizando tabelas de frequência e testes estatísticos, complementados pelo cálculo do Alfa de Cronbach, para avaliar o grau de confiabilidade das respostas obtidas. A partir da análise das respostas, os resultados revelaram que algumas características dos respondentes influenciam na avaliação sobre a qualidade da transparência, como servidores com maior grau de formação, agentes efetivos, funcionários atuantes há mais tempo na função e ocupantes dos cargos de contador(a) e controlador(a) interno(a) são mais rigorosos ao avaliar as questões relativas à transparência. Demonstrou-se ainda que a percepção sobre a qualidade da transparência tem associação com a capacitação dos servidores. Esse estudo possui relevância social, uma vez que poderá auxiliar os gestores das Câmaras Mineiras na melhoria de suas políticas de transparência, a partir do conhecimento das características e competências de seu quadro de pessoal.

Palavras-chave: Transparência Pública. Câmaras Municipais. Percepções. Minas Gerais.

Verônica Ketley Silva
Pós-graduada em Contabilidade, Auditoria e Controladoria pelo Centro Universitário Internacional (UNINTER). Bacharela em Ciências Contábeis pela Universidade Federal de Viçosa (UFV). Agente Administrativo na Prefeitura Municipal de Rio Paranaíba-MG. veronica.ketley@ufv.br. ORCID iD: https://orcid.org/0009-0006-3134-8458. Currículo Lattes: http://lattes.cnpq.br/1986706579609474

Michelle Aparecida Vieira
Doutora em Ciências Contábeis pela Universidade Federal de Uberlândia (UFU). Mestre em Administração e Bacharela em Ciências Contábeis pela Universidade Federal de Viçosa (UFV). Docente do curso de Ciências Contábeis na Universidade Federal de Viçosa (UFV). michelle.vieira@ufv.br. ORCID iD: https://orcid.org/0000-0002-9170-9749. Currículo Lattes: http://lattes.cnpq.br/8166604829932651

Rodrigo Silva Diniz Leroy
Doutor em Ciências Contábeis pela Universidade Federal de Uberlândia (UFU). Mestre em Administração e Bacharel em Ciências Contábeis pela Universidade Federal de Viçosa (UFV). Docente do curso de Ciências Contábeis na Universidade Federal do Espírito Santo (UFES). E-mail: rodrigo.leroy@ufes.br. ORCID iD: https://orcid.org/0000-0003-4233-0940. Currículo Lattes: http://lattes.cnpq.br/8340295896149778

Robson Zuccolotto
Doutor em Controladoria e Contabilidade pela Universidade de São Paulo (USP). Mestre em Ciências Contábeis pela Fundação Instituto Capixaba de Pesquisa em Contabilidade, Economia e Finanças (FUCAPE). Bacharel em Ciências Contábeis pelas Faculdades Integradas Castelo Branco (FCB). Docente do curso de Ciências Contábeis na Universidade Federal do Espírito Santo (UFES). robson.zuccolotto@ufes.br. ORCID iD: https://orcid.org/0000-0002-2629-5586. Currículo Lattes: http://lattes.cnpq.br/5840211354831676

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 03 February 2024. Proofread: 09 December 2024. New alterations: 09 January 2025. Accepted: 20 February 2025, by Dr. João Estevão Barbosa Neto and Dr. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1. INTRODUCTION

Public transparency refers to public bodies providing information that enables citizens to monitor their actions and performance (Grimmelikhuijsen et al., 2013). Unveiling the acts of these bodies can increase their reliability in the eyes of society as it enables the latter to exercise social control to reduce corruption, promote public management efficiency, and encourage popular participation (Oliveira et al., 2018).

Thus, democratic societies are increasingly demanding toward the transparency of their public entities as it enables them to monitor the actions of their rulers (elected politicians, bureaucrats, and public managers) and exercise citizenship (Silva & Diniz Filho, 2019). Although the topic has gained more prominence, the Brazilian Federal Constitution has guaranteed access to public data since 1988, which the Fiscal Responsibility Law (Complementary Law no. 101, of May 4, 2000), the Transparency Law (Complementary Law no. 131, of May 27, 2009), and the more recent Law of Access to Information (Law no. 12,527, of November 18, 2011) — which provides for the obligation to make public information available by electronic means (Brasil, 1988, 2000, 2009, 2011) — have improved.

Moreover, the advancement of information and communication technologies has facilitated the dissemination of this information (Campagnoni et al., 2016), generating greater challenge to agencies since, in addition to making these data available, they must ensure that the content is understandable by society and easily accessible as transparency exceeds the simple disclosure of this information (Drehmer & Raupp, 2018). Thus, by its state capacities, public administration must seek to continuously improve its mechanisms that promote transparency.

In this context, although the three government branches fall subject to the same laws, there remain differences in their degrees of transparency, which Drehmer and Raupp (2018) explain by the forms of control and inspection to which each branch falls subject and the capacity of financial, personnel, and technological resources (or even negligence from the representatives and employees of these institutions) of promoting compliance with the legislation. Macedo et al. (2020) found that the greatest difficulties related to transparency in municipal executive powers mainly refer to their lack of technological resources and trained personnel, the neglect of the local public administration, and lack of demands by citizens. Moreover, the formalism culture of the judiciary configures the main obstacle to promoting transparency (Cruz & Zuccolotto, 2020).

However, little is known about the determinants of legislative transparency. According to Raupp and Pinho (2015), few studies have addressed the use of electronic legislation by city councils toward transparency and accountability since most research focuses on the federal and state levels. Also, among the three branches of the federal government (executive, legislative, and judiciary), the legislative shows the lowest transparency index, a worrying factor given its importance (Silva & Diniz Filho, 2019). Silva, Leroy, and Pereira (2022) observed that, in general, the city councils in the metropolitan region of Belo Horizonte, Minas Gerais, have low levels of transparency. More than half fail to comply with the provisions of the Law of Access to Information since they have no such law of their own on the subject.

To achieve its objectives, the State counts on essential tools, such as well-trained civil servants and financial resources, to expand the effectiveness of its action with society (Skocpol, 1985). Thus, despite all the available resources and instruments to implement a public policy of transparency, this process can suffer from the reality of the involved actors, corroborating the need to understand the perception of the members of the councils of Minas Gerais about the process of making public information available.

The regional and administrative relevance of the state justifies studying transparency in the city councils in Minas Gerais. The state has the largest number of municipalities in Brazil (853), each with its city council. Such administrative and social diversity offers a unique panorama for analyzing how transparency is implemented in different contexts.

Thus, the following guiding problem arises: What is the perception of the agents in city councils involved with transparency about the process of making information available? Thus, this study aims to analyze the perception of the members of the city councils of Minas Gerais about the quality of transparency of their electronic portals.

This research contributes to the literature on public transparency by having a unique approach that seeks to understand the internal view on transparency by finding the opinion and position of members of city councils on the quality of transparency of their electronic portals, discussing how the importance given to transparency interferes in its effectiveness in practice.

In addition to this introduction, this study has four other sections: theoretical framework, methodology, results, and final considerations. The literature review section starts by discussing the Brazilian laws that regulate transparency, then addressing state capacities, and finally, describing previous studies on transparency in the three governmental branches (executive, legislative, and judiciary).

2. LITERATURE REVIEW

2.1 Brazilian legislation regulating transparency

Since its redemocratization, Brazil has adopted several initiatives to promote transparency, especially a normative one. The 1988 Federal Constitution is considered the main milestone for the development of transparency in Brazil, guaranteeing access to information and ensuring the right to receive information of private, collective, or general interest from public bodies (Art. 5, items XIV and XXXIII) (Brasil, 1988). Moreover, its art. 37 provides for the principle of publicity, which, according to Silva and Diniz Filho (2019), very clearly addresses the obligation of public administration entities to promote the transparency of their activities, widely disclosing this information.

Based on these precepts from the Federal Constitution of 1988, other legal provisions aimed to increasingly promote transparency in the Brazilian government, including the Fiscal Responsibility Law, the Transparency Law, and the Law of Access to Information. Complementary Law No. 101, of May 4, 2000, the Fiscal Responsibility Law, provides for transparency in fiscal management, establishing an entire chapter to discuss transparency, control, and inspection (Brasil, 2000).

For Silva and Sena (2007), it emerged due to the difficulties in managing public resources and the need for greater responsibility from its administrators. Since its publication, the requirements for the disclosure of information on public spending have increased (Raupp & Pinho, 2013) since it established the instruments of transparency in fiscal management, guidelines regarding accountability by public managers, and the obligation to widely disclose them in electronic means of public access.

Then, Complementary Law No. 131, of May 27, 2009, the Transparency Law, added provisions to the Fiscal Responsibility Law, emphasizing accountability by electronic means and real-time availability of information on budget and financial execution (Brasil, 2009). Finally, the most recent publication, the Law of Access to Information (Law no. 12,527 of November 18, 2011) regulates access to information, in which the State has become the guardian of public information instead of just the holder of official documents (Brasil, 2011; Michener et al., 2018).

Thus, the Law of Access to Information represents an important advance toward transparency provisions since it establishes the procedures for access to public information in which any interested party may request this access to the agencies and ensures transparent management and the government duty to disclose information of collective or general interest in places of easy access regardless of requirements (Rocha, 2012).

In this context, Lima (2019), studying the construction of transparency in Brazilian public bodies after the 1988 Constitution, observed that the enactment of transparency related to the theme configured great relevance for the evolution of transparency in Brazil, which remains very far from what is provided for in its laws and, above all, from meeting the demands of society. Thus, although such legislation has significantly advanced the transparency process, they will be insufficient in the absence of a culture of transparency from the State and society (Lima, 2019).

2.2 State Capacities related to promoting public transparency

In the current context — in which access to government information is a constitutional right regulated by the Law of Access to Information —, the State, represented by all its institutions, must seek to improve its mechanisms to comply with the requirements of the above law (Brandão & Barbosa, 2020). Gomide and Pires (2014) understand the existence of state capacities as necessary to manage the cycle of public policies in the states and municipalities. Considering that the Law of Access to Information configures a mechanism to materialize the transparency policy in Brazil, it is relevant to highlight the capacities of the Brazilian State, notably the municipal legislature, to produce and implement transparency policies.

Several authors have studied the concept of state capacities over the years, and it has numerous definitions based on different approaches (Aguiar & Lima, 2019; Grin, Demarco & Abrucio, 2021; Pires & Gomide, 2016; Souza, 2017). For Evans (1993), State capacity refers to the instruments and institutions the State has at its disposal to determine its objectives and be able to execute them.

As for Pires and Gomide (2016), the capacity of the State is related to the skills and competencies to solve problems and deliver results. In Fukuyama's conception (2004), state capacity refers to the ability of public agencies to plan and execute policies and cleanly and transparently enforce laws. Thus, in view of these concepts, state capacities can be analyzed considering two main dimensions: political-institutional and technical-administrative (Grin et al., 2021).

The first dimension — political-institutional capacity — analyzes the public policy instruments that ensure the management of the territory and influence the behavior of social actors and evaluates the resources to expand the channels of dialogue with society to meet social demands (Grin et al., 2021). The second dimension — technical-administrative capacity — is related to the organizational efficiency of the entity, evaluating the availability of adequate human, technological, and financial resources to perform its actions and the strategies to coordinate and monitor its activities (Gomide & Pires, 2014).

For Souza (2017), state capacities exceed the attributes a governmental structure can install, mainly including the conditions for action and organizational resources that can be mobilized to formulate and implement public policies. Thus, the State must act by resources, decisions, guidelines, legislation, and information to achieve its proposed objectives and the quality of any public policy (Silva & Almeida, 2022).

According to Bojórquez-Carrillo, Manzano-Loría, and Uc-Heredia (2015), administrative capacity stems from a broader concept: institutional capacity, the ability of organizations to respond to the demands and needs of the population. The analysis of transparency based on compliance with legal precepts requires evaluating the attributes and abilities of the State to produce and disseminate information about the management of the public machine, i.e., its capacities to implement policies are associated with the quality of public transparency.

Thus, government actions depend on their state capacities and their structures and relationship with social groups (Evans, 1995). Moreover, the more developed the state capacities of an entity, the greater its possibility of success in developing its functions and achieving its objectives (Grin, Nascimento, Abrucio & Fernandes, 2018).

2.3 Previous studies on public transparency in Brazil

This section describes some national research on legislative transparency. Raupp and Cunha (2010), for example, researched the level of transparency of the actions developed in city councils in the state of Santa Catarina by their electronic portals, finding that the municipal councils remain in the initial phases of promoting transparency by their electronic portals and highlighting a tendency for councils in municipalities with larger populations to have a high degree of transparency than those in municipalities with small populations.

Campagnoni et al. (2016) assessed the levels of transparency in electronic portals of the city councils of the Brazilian capitals using Nunes' multicriteria model (2013), finding low transparency in these chambers and that more than 50% of such portals showed little or no organized and updated information, thus requiring improvements.

Focusing on active transparency, Andrade, Raupp, and Pinho (2017) investigated the electronic portals of the councils of 133 Brazilian municipalities with a population of more than 200,000 inhabitants. Their observation protocol organized the councils into four groups according to the capacity of their portals: null, low, medium, or high. Results showed that most portals failed to meet the minimum expected for transparency, i.e., the legal requirements, pointing out that active transparency is yet to be a reality in the councils of the largest Brazilian municipalities.

Likewise, Ferracioli and Herman (2019) analyzed whether the transparency portals of state legislative and executive branches enabled citizens to understand their information. They found that states with greater financial resources provide greater quality and comprehensibility of the information made available, highlighting that the legislative and executive branches offer insufficient basic information to promote transparency, showing that such sites may only exist to comply with legal determinations.

Silva, Leroy, and Pereira (2022) observed that most municipal councils in the metropolitan region of Belo Horizonte, Minas Gerais, have low levels of transparency, failing to comply with the precepts of the Law of Access to Information and to regulate their own municipal law on the subject. They also found that municipalities with higher legislative spending tend to have less transparent chambers, whereas more populous municipalities tend to have better levels of transparency.

In view of these studies, this research aims to further the research on public transparency, addressing the legislative power of municipalities in Minas Gerais by analyzing the perceptions of the members of its city councils about the transparency of their electronic portals.

3. METHODOLOGICAL PROCEDURES

This quantitative research used statistical methods to analyze the data obtained by its questionnaire. For Richardson (1999), quantitative research begins by quantifying data collection, then treating them by specific techniques. Finally, such research includes surveys since it directly seeks information from its interest group about the studied problem, obtaining conclusions regarding the collected data by quantitative methods (Gil, 2008).

The instrument to collect data involved a structured questionnaire with 11 closed questions elaborated by an electronic form (Google Forms), sent via institutional e-mails to all city councils in Minas Gerais, and that had to be answered by only one legislative representative. To collect electronic addresses, consultations were directly carried out on the official websites of the councils and via request to the legislative assembly of Minas Gerais.

The questionnaire was submitted to a Research Ethics Committee and approved by it. Moreover, before data collection, the questionnaire was subject to a pre-test with the internal controller of a city council of Minas Gerais. Then, it was sent to all 853 councils of Minas Gerais, accepting responses from September 13, 2022 to January 25, 2023.

The emails were sent to the electronic addresses of the 853 city councils in Minas Gerais. Its questionnaire was intended for those responsible for transparency in the councils, thus mainly expecting responses from accountants, internal controllers, council presidents, councilors, legislative advisors, and secretaries.

Before participants could answer the questionnaire, an informed consent form was described on the first page of the form to explain this research and obtain consent for participation. The questionnaire was organized into three sections: the first one sought to characterize respondents' profile, collecting data on age, academic background, position, and time working at the institution, whereas the second section aimed to characterize the profile of the municipality relative to its mesoregion and population size.

The third section offered questions on respondents' perceptions of the entity state capacities to promote transparency elaborated as a 1-to-5 Likert scale, which considered one as very bad and five, very good. This section evaluated whether the councils have enough servers to meet demands of transparency and whether they are trained and updated on the transparency guidelines. Finally, the questionnaire included a question on respondents' perception of the quality of transparency in the council in which they work, to also be assessed as a 1-to-5 Likert scale.

The Likert scale "consists of developing a set of statements related to its definition for which the respondents will issue their degree of agreement" (Silva Júnior & Costa, 2014, p. 5). To evaluate the degree of reliability of the questionnaire and ensure that the obtained results correctly reproduce reality (Almeida et al., 2010), Cronbach's alpha coefficient was used. According to Hora, Monteiro, and Arica (2010, p. 89), Cronbach's alpha coefficient "measures the correlation between answers in a questionnaire by analyzing the profile of the answers given by the respondents, configuring an average correlation between questions." Its scale ranges from 0 to 1, and for the questionnaire to be considered reliable, the value must equal or exceed 0.7. To calculate Cronbach's alpha, the statistical software Stata was used, showing a 0.7252 coefficient that attests to the reliability of the research instrument.

Responses were obtained from 100 city councils, configuring a significant sample for the population of 853 Minas Gerais city councils, considering a confidence level of 95% and a margin of error of 10%. Moreover, this sample is considered probabilistic as its rate of responses had an equivalent distribution to the municipalities of Minas Gerais according to population size.

In some analyses, the chi-squared independence test was used when it aimed to find whether two or more variables were associated or dependent based on the comparison of the expected frequencies with the respective observed values of the tested variables (Bruni, 2013). The null hypothesis of independence claims that the quality of public transparency fails to depend on the number of civil servants and their training, considering the perception of the civil servants in this research. Thus, the null hypothesis would be rejected if the significance of the test (p-value) would remain below 0.05 (the significance level adopted in this study).

4. ANALYSIS OF THE RESULTS

4.1 Profile of the responding professionals

The first section of the questionnaire aimed to find respondents' characteristics (Table 1).

Table 1 - Descriptive Statistics of Respondents' Profile.

Variable	Characteristic	n	%
Age group	Up to 30 years	12	12,0
	From 30 to 49 years	74	74,0
	From 50 to 69 years	14	14,0
Education Level	High School/Technical	21	21,0
	Higher Education	31	31,0
	Graduate studies	42	42,0
	Master's degree	06	6,0
Degree (Undergraduate course)	Accounting	21	21,0
	Business Administration	16	16,0
	Economy	02	2,00
	Law	22	22,0
	Social Communication	07	7,00
	Other	32	32,0
Position Held	Accountant	09	9,00
	Internal Controller	15	15,0
	Legislative Advisor	24	24,0
	Councilor	04	4,00
	Secretary	20	20,0
	Director	05	5,00
	Legislative Attorney	03	3,00
	Other	20	20,0
Time in the Position	Less than 1 year	06	6,00
	From 1 to 5 years	43	43,0
	From 6 to 10 years	14	14,0
	From 10 to 20 years	23	23,0
	Over 20 years	13	13,0
Link with the Council	Political Agent	05	5,00
	Effective	52	52,0
	Commissioned	39	40,0
	Other	03	3,00

Of the 100 respondents, most were aged from 30 to 49 years (74%). Regarding their level of education, 31.0% of respondents have completed higher education, of which 42% have graduate degrees and 6.0%, master's degrees. França (2019) highlights that the level of education is inversely related to the level of perceived transparency since participants with higher levels of education tend to more rigorously evaluate these issues, leading to lower levels of perception of transparency. Moreover, such members can increase the level of transparency and quality of information.

Allied to this, law, accounting, and administration stand out among the areas of undergraduate training as they more aptly address transparency due to their technical knowledge on these issues (Santos et al., 2019). Also, the positions held in the councils showed a good distribution; legislative advisors, secretaries, internal controllers, and accountants showed higher response rates.

Note the high percentage of responses referring to permanent and commissioned employees as 39% of responses came from commissioned employees, which can lead to a greater number of positive responses regarding transparency since commissioned employees (holders of positions of trust that lack the stability effective staff enjoy) generally seek to please their superiors to reach better positions or simply avoid the risk of leaving the organization (Estrela et al., 2015). Finally, 43% of respondents had worked in their position from one to five years.

4.2 Profile of the responding municipalities

The obtained answers traced the profile of the responding municipalities (Table 2).

Note that responses came from all 12 mesoregions of Minas Gerais and that only two of them (Vale do Mucuri and Northwestern Minas Gerais) provided a single response. Also, Southern/Southwestern Minas Gerais, Zona da Mata, and Central Minas Gerais configure the mesoregions with the highest number of responses.

Table 2 - Descriptive Statistics of the Profile of the Municipality.

Variable	Characteristic	no	%
Mesoregion	Campo das Vertentes	07	7,00
	Central Mineira	12	12,0
	Jequitinhonha	06	6,00
	Metropolitana de Belo Horizonte	08	8,00
	Northwestern Minas Gerais	01	1,00
	Northern Minas Gerais	07	7,00
	Western Minas Gerais	04	4,00
	Southern/Southeastern Minas Gerais	26	26,0
	Triângulo Mineiro/Alto Paranaíba	07	7,00
	Vale do Mucuri	01	1,00
	Vale do Rio Doce	06	6,00
	Zona da Mata	15	15,0
Population Size	Up to 20,000 inhabitants	71	71,0
	From 20,001 to 50,000 inhabitants	12	12,0
	From 50,001 to 100,000 inhabitants	11	11,0
	From 100,001 to 900,000 inhabitants	06	6,00
	Above 900,001 inhabitants	-	-

Regarding population size, a higher degree of adherence to the answers occurred in municipalities with a population of up to 20,000 inhabitants, corresponding to 71% of the answers, whereas only 6% of the answers referred to municipalities with 100,000 to 900,000 inhabitants, and the only municipality with a population size above 900,000 inhabitants provided no response.

4.3 Perceptions according to respondents' profile

The data on the profile of the respondents and the municipalities showed the perceptions of participants on issues related to transparency according to their characteristics. Thus, first, we sought to relate the perceptions regarding the number of civil servants to meet demands of transparency according to population size (Table 3).

Table 3 - Perception of the number of civil servants by population size

Population Size	Sufficient servers					Total
	1	2	3	4	5	
Up to 20,000 inhabitants	3	8	16	16	28	71
From 20,001 to 50,000 inhabitants	0	1	2	3	6	12
From 50,0001 to 100,000 inhabitants	0	1	3	4	3	11
From 100,001 to 900,000 inhabitants	0	0	3	1	2	06
Total	3	10	24	24	39	100

Table 3 shows that more than 70% of the respondents who consider the number of civil servants insufficient (1 to 3) correspond to municipalities housing up to 20,000 inhabitants. Such perception may be related to the fact that because smaller municipalities have fewer technologies as larger municipalities, they demand more time and human resources to carry out their transparency process, leading to the perception of insufficient servers to meet these demands.

Next, this study associated the perception of the training of civil servants regarding transparency guidelines according to the characteristics of the respondents (Table 4).

Table 4 - Perception of the training of civil servants according to characterization

		Trained servers					Total
		1	2	3	4	5	
Age Group	Below 30 years	0	1	3	4	4	12
	From 30 to 49 years	3	9	19	22	21	74
	From 50 to 69 years	1	2	5	2	4	14
Educational Level	High School/Technical	3	2	3	5	8	21
	Higher education	1	6	10	10	4	31
	Graduate studies	0	2	13	11	16	42
	Master's degree	0	2	1	2	1	6
Link	Political Agent	0	2	2	1	0	5
	Commissioned	2	2	5	15	16	40
	Effective	2	7	20	11	12	52
	Other	0	1	0	1	1	3
Position	Legislative Advisor	1	1	4	9	9	24
	Accountant	0	1	4	2	2	9
	Internal Controller	0	1	7	4	3	15
	Director	1	0	1	1	2	5
	Legislative Attorney	0	0	2	0	1	3
	Secretary	0	4	3	6	7	20
	Councilor	0	1	1	2	0	4
	Other	0	5	6	5	4	20

		Trained servers					Total
		1	2	3	4	5	
Time in the Position	Less than 1 year	0	1	2	3	0	6
	From 1 to 5 years	2	3	9	16	13	43
	From 6 to 10 years	0	3	3	3	6	15
	From 10 to 20 years	1	1	10	4	7	23
	Over 20 years	1	4	3	2	3	13
Population Size	Up to 20,000 inhabitants	4	8	16	18	25	71
	From 20,001 to 50,000 inhabitants	0	1	6	3	2	12
	From 50,0001 to 100,000 inhabitants	0	2	4	4	1	11
	From 100,001 to 900,000 inhabitants	0	1	1	3	1	6
Total		**4**	**12**	**27**	**28**	**29**	**100**

Table 4 shows that, regarding age group, most respondents were aged from 30 to 49 years, of whom 41.9% consider that the civil servants receive poor training. Regarding their level of education, respondents who have higher education more rigorously evaluated the training of civil servants since more than 40% of participants who have higher education, and graduate degrees consider the civil servants to be poorly trained, whereas only 22% of respondents who have a high school education have such perception.

As for the link with the councils, 55% of the permanent civil servants consider that the civil servants received poor training, whereas over 20% of commissioned staff have such view, which shows a tendency of the latter to better evaluate the proposed issues. Also, accountants, internal controllers, and civil servants with longer time in their position found that the servers are poorly trained.

Thus, a portion of respondents (which have a few predominant characteristics in common) considered the issue of training civil servants as a problem. Thus, respondents with a higher degree of training, effective agents, employees in their position for a longer time, accountants, and internal controllers found that the servers received poor training. França (2019) and Estrela, Souza, and Castro (2015) highlight that the level of education is conversely related to the level of perception on issues related to transparency and that commissioned civil servants tend to show positive evaluations due to their lack of stability in their positions, respectively.

Finally, we show the perception of the quality of transparency according to the characteristics of respondents (Table 5).

Table 5 stresses that, in general, most respondents judge the quality of transparency as good or very good (4 and 5), and only 17 participants evaluated it as 1, 2, or 3.

Table 5 - Perception of the quality of transparency according to characterization

		Quality of transparency					Total
		1	2	3	4	5	
Age Group	Below 30 years	0	0	2	5	5	12
	From 30 to 49 years	1	2	8	29	34	74
	From 50 to 69 years	1	0	3	6	4	14
Educational Level	High School/Technical	2	1	3	5	10	21
	Higher education	0	0	7	13	11	31
	Graduate studies	0	1	2	18	21	42
	Master's degree	0	0	1	4	1	6
Link	Political Agent	0	0	0	3	2	5
	Commissioned	0	0	5	12	23	40
	Effective	1	2	8	24	17	52
	Other	1	0	1	0	1	3

		Quality of transparency					Total
		1	2	3	4	5	
Position	Advisor	0	1	3	9	11	24
	Accountant	0	0	0	4	5	9
	Internal Controller	0	0	1	9	5	15
	Director	0	0	1	2	2	5
	Legislative Attorney	0	0	0	1	2	3
	Secretary	0	1	1	7	11	20
	Councilor	0	0	1	1	2	4
	Other	2	0	3	10	5	20
Time in the Position	Less than 1 year	0	0	1	3	2	6
	From 1 to 5 years	1	0	4	18	20	43
	From 6 to 10 years	0	0	3	4	7	15
	From 10 to 20 years	0	1	2	8	12	23
	Over 20 years	1	1	2	6	3	13
Population Size	Up to 20,000 inhabitants	2	1	10	25	33	71
	From 20,001 to 50,000 inhabitants	0	0	1	5	6	12
	From 50,0001 to 100,000 inhabitants	0	1	1	7	2	11
	From 100,001 to 900,000 inhabitants	0	0	1	3	2	6
Total		**2**	**2**	**13**	**40**	**43**	**100**

An important aspect to be highlighted is that 81% of the municipalities with a population of up to 20,000 inhabitants evaluated the quality of transparency as good, disagreeing with the literature, which generally shows that small municipalities have a poor quality of transparency. Raupp and Cunha (2010), for example, argue for the tendency of councils in municipalities with larger populations to have a high degree of transparency than those in smaller municipalities. Ferracioli and Herman (2019) observed that states with greater financial resources provided greater quality of transparency.

Specifically, regarding Minas Gerais, Leroy et al. (2024) point out that all councils fail to comply, to some extent, with the necessary requirements for a quality transparency portal. They also found the critical reality of the Minas Gerais city councils since their portals have low levels of transparency.

Thus, although a large portion of the participants gave a good assessment of transparency, the literature shows the opposite. As for those who offered below-maximum scores, some variables influenced such findings, analyzed in the next section.

4.4 Variables that influenced the perception of the quality of transparency

To understand the variation in perceptions of transparency quality, this study related the other variables in the questionnaire and applied the chi-squared test (Table 6).

Table 6 - Cross-tabulation: quality of transparency with enough well-trained servers

			Quality of transparency					Total	p-value
			1	2	3	4	5		
Sufficient number of servers	1	Observed	1	0	0	1	1	3	0,0005
		Expected	0,1	0,1	0,4	1,2	1,3		
	2	Observed	0	1	3	5	1	10	
		Expected	0,2	0,2	1,3	4,0	4,3		
	3	Observed	0	1	4	12	7	24	
		Expected	0,5	0,5	3,1	9,6	10,3		
	4	Observed	1	0	3	13	7	24	
		Expected	0,5	0,5	3,1	9,6	10,3		
	5	Observed	0	0	3	9	27	39	
		Expected	0,8	0,8	5,1	15,6	16,8		
Trained Servers	1	Observed	1	0	2	1	0	4	0,0000
		Expected	0,1	0,1	0,5	1,6	1,7		
	2	Observed	0	2	3	5	2	12	
		Expected	0,2	0,2	1,6	4,8	5,2		
	3	Observed	0	0	6	17	4	27	
		Expected	0,5	0,5	3,5	10,8	11,6		
	4	Observed	1	0	2	14	11	28	
		Expected	0,6	0,6	3,6	11,2	12,0		
	5	Observed	0	0	0	3	26	29	
		Expected	0,6	0,6	3,8	11,6	12,5		
Total			**2**	**2**	**13**	**40**	**43**	**100**	

The chi-squared test of independence is based on the premise of the null hypothesis, in which the variables are independent of each other at a significance level of 5% ($\alpha = 0.05$), rejecting the null hypothesis if p-value <0.05. The test rejected the null hypothesis that the variables are independent, showing a statistically significant relation between the perception of quality of transparency and the variables "number of servers" and "trained servers."

Thus, the association between the variables shows that as respondents consider that the sufficient number of civil servants, combined with their training and updating on the transparency guidelines, are associated with a better perception of the quality of transparency. We can explain this relation by the fact that a sufficient number of servers ensure that operational demands are met without overload and that training and updating ensure that professionals fully understand the legal requirements and good practices in managing transparency. If aligned, these factors contribute to the efficient implementation of transparency policies, resulting in more consistent and reliable practices, which respondents perceive as an improvement in the overall quality of transparency.

This result highlights the importance of investing in increasing staff and in continuous training programs as key elements to raise transparency standards and promote more efficient and responsible public management.

These findings corroborate Macedo et al. (2020), which related the lack of resources and trained personnel with the difficulties in promoting transparency. Moreover, Grin et al. (2018) stressed that the more developed the entity state capacities, the greater the possibility of success in developing its functions and achieving its objectives, reflecting on the quality of transparency.

Note that some municipalities considered having insufficient number of employees, but also considered them well trained, reflecting a good evaluation of transparency, which confirms the results of the chi-squared test. This evinces the importance of training civil servants to promote transparency with quality.

5 FINAL CONSIDERATIONS

This research mainly aimed to analyze the perception of the employees of the city councils of the state of Minas Gerais about the quality of transparency of their electronic portals due to its importance and scarcity of studies on transparency in municipal legislature. For this, it sent a structured questionnaire to all city councils in Minas Gerais.

The analyzed sample included the 100 city councils that responded to the questionnaire. In general, most responding chambers lie in municipalities with a population size of up to 20,000 inhabitants. Most responding professionals have completed higher education, a large portion of them have graduate studies, and about 24% work as accountants and/or internal controllers.

Results showed that some factors influence the perception of civil servants about the quality of transparency: the profile of the professionals, such as level of education, position, link with the chamber, and time of experience in the position constitute factors that affected respondents' evaluation of the issues related to transparency. Thus, civil servants with a higher degree of training, those effective positions, accountants or internal controllers, and those having worked longer in their function tended to more rigorously evaluate transparency, finding problems and offering lower evaluations.

On the other hand, civil servants who have been in the position for less time, those under commissions, and those with a lower level of education evaluated transparency as good. This assessment suggests a less technical and more superficial perception of transparency, which may indicate that a lack of knowledge or experience makes it difficult to find more complex problems, contributing to more favorable but potentially less accurate assessments. These differences in the perceptions of civil servants reinforce the importance of experience and technical knowledge to continuously improve transparency processes and suggest the need for technical training programs to ensure that objective and standardized criteria evaluate transparency.

Regarding the competencies councils to promote transparency regarding the number of sufficient and trained civil servants to meet the demands of transparency and its association with perceptions about the quality of transparency, the chi-squared test showed that the number of civil servants shows no association with the perception of the quality of transparency, whereas the presence of trained and updated servers influences this evaluation, thus highlighting the importance of public managers investing in training their employees.

Due to its unique approach to understanding the internal view on the subject, finding the perceptions of the members of councils about the quality of transparency, this socially relevant study can help the managers of Minas Gerais city councils to design public policies on transparency.

Despite the results, this study has some limitations, especially its difficulty in obtaining answers. Thus, sample calculation required a margin of error of 10% (higher than the usual margin of 5%), reducing its power to predict results.

Future research should compare the perceptions of civil servants with the transparency indicators from the Federal Senate and conduct direct interviews with stakeholders to explain points that he applied questionnaire failed to further develop. Finally, this study recommends a broader investigation comparing the perceptions of civil servants in the executive, legislative, and judiciary branches.

REFERENCES

Aguiar, R. B. de, & Lima, L. L. (2019). Capacidade estatal: definições, dimensões e mensuração. BIB - Revista Brasileira de Informação Bibliográfica em Ciências Sociais, [S. l.](89), 1–28. https://doi.org/10.17666/bib8905/2019

Almeida, D., Santos, M. A. R. dos, & Costa, A. F. B. (2010, outubro). Aplicação do coeficiente Alfa de Cronbach nos resultados de um questionário para avaliação de desempenho da saúde pública. XXX Encontro Nacional de Engenharia de Produção.

Andrade, R. G. de, Raupp, F. M., & Pinho, J. A. G. de. (2017). Em busca da transparência ativa em Câmaras: uma investigação nos maiores municípios brasileiros. Advances in Scientific and Applied Accounting, 10(1), 3–20. https://doi.org/10.14392/asaa.2017100101

Bojórquez Carrillo, A. L., Manzano Loría, M. E., & Uc Heredia, L. J. (2015). Análisis de la relación entre la capacidad administrativa y la transparencia en gobiernos locales en México. Investigaciones Regionales – Journal of Regional Research, 31, 101–118.

Brandão, R. P., & Barbosa, J. C. G. (2020). O acesso à informação em agências reguladoras: uma análise sob a perspectiva da transparência passiva [Monografia/TCC]. Escola Nacional de Administração Pública.

Brasil. (1988). Constituição da República Federativa do Brasil de 1988. http://www.planalto.gov.br/ccivil_03/constituicao/constituicao.htm

Brasil. (2000). Lei Complementar no 101, de 4 de maio de 2000. http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp101.htm

Brasil. (2009). Lei Complementar no 131, de 27 de maio de 2009. http://www.planalto.gov.br/ccivil_03/leis/lcp/lcp131.htm

Brasil. (2011). Lei no 12.527, de 18 de novembro de 2011. http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2011/lei/l12527.htm

Bruni, A. L. (2013). Estatística Aplicada à Gestão Empresarial (4o ed). Atlas.

Campagnoni, M., Carvalho, R. D., Lyrio, M. V. L., Lunkes, R. J., & Rosa, F. S. da. (2016). Transparência no Poder Legislativo municipal: uma análise dos portais eletrônicos das Câmaras de Vereadores das capitais brasileiras. Revista Gestão Organizacional, 9(1), 21–42. https://doi.org/10.22277/rgo.v9i1.2934

Drehmer, A. F., & Raupp, F. M. (2018). Comparando Transparência Passiva na esfera estadual: Executivo, Legislativo e Judiciário. Sociedade, Contabilidade e Gestão, 13(2), 28–46. https://doi.org/10.21446/scg_ufrj.v13i2.13673

Estrela, C. de S., Souza, D. S. de, & Castro, L. A. G. (2015). A gestão da informação enquanto ferramenta estratégica para uma administração de transparência no município de Camaçari - BA [Monografia do curso de Especialização em Gestão Pública Municipal]. Universidade da Integração Internacional da Lusofonia Afro-brasileira – UNILAB.

Evans, P. (1993). O Estado como problema e solução. Lua Nova: Revista de Cultura e Política, 28–29, 107–157. https://doi.org/10.1590/S0102-64451993000100006

Evans, P. (1995). Embedded autonomy : states and industrial transformation. Princeton University Press. https://doi.org/10.1515/9781400821723

Ferracioli, P., & Herman, F. (2019). Habilitando o cidadão para a transparência Análise de portais estaduais do executivo e legislativo. Agenda Política, 7(1), 217–238. https://doi.org/10.31990/agenda.2019.1.9

França, F. Í. L. (2019). Proposição e teste de uma escala de percepção da transparência organizacional [Dissertação]. Universidade de Brasília.

Fukuyama, F. (2004). The Imperative of State-Building. Journal of Democracy, 15(2), 17–31. https://doi.org/10.1353/jod.2004.0026

Gil, A. C. (2008). Métodos e Técnicas de Pesquisa Social (6o ed). Atlas.

Gomide, A. de Á., & Pires, R. R. C. (2014). Capacidades estatais e democracia: arranjos institucionais de políticas públicas. Ipea.

Grimmelikhuijsen, S., Porumbescu, G., Hong, B., & Im, T. (2013). The Effect of Transparency on Trust in Government: A Cross-National Comparative Experiment. Public Administration Review, 73(4), 575–586. https://doi.org/10.1111/puar.12047

Grin, E. J., Nascimento, A. B. do, Abrucio, F. L., & Fernandes, A. S. (2018). Sobre desconexões e hiatos: uma análise de capacidades estatais e finanças públicas em municípios brasileiros (About disconnections and gaps: an analysis of state capacity and public finances in brazilian municipalities). Cadernos Gestão Pública e Cidadania, 23(76), 312–336. https://doi.org/10.12660/cgpc.v23n76.75417

Grin, J., Demarco, D. J., & Abrucio, F. L. (2021). Capacidades estatais municipais: o universo desconhecido no federalismo brasileiro (1o ed). Editora da UFRGS/CEGOV.

Hora, H. R. M. da, Monteiro, G. T. R., & Arica, J. (2010). Confiabilidade em Questionários para Qualidade: Um Estudo com o Coeficiente Alfa de Cronbach. Produto & Produção, 11(2), 85–103. https://doi.org/10.22456/1983-8026.9321

Leitão da Cruz, G. J., & Zuccolotto, R. (2020). Transparência ativa no Judiciário: um estudo dos portais eletrônicos dos Tribunais de Justiça. Cadernos Gestão Pública e Cidadania, 25(82). https://doi.org/10.12660/cgpc.v25n82.80149

Leroy, R. S. D., Moreira, I. R. J., Raupp, F. M., Bernardo, J. S. (2024). Transparência dos portais legislativos: análise das câmaras municipais de Minas Gerais. Revista do Tribunal de Contas do Estado de Minas Gerais, 42(1). https://revista.tce.mg.gov.br/pagina/article/view/159

Lima, M. P. de. (2019). Um panorama sobre a construção da transparência no Brasil pós Constituição Federal de 1988. Anais do Encontro da Anpad - ENANPAD.

Macedo, S. V., Valadares, J. L., Ribeiro Filho, W. F., & Da Silva Júnior, A. C. (2020). Transparência Local: Implicações da Lei de Acesso à Informação em Municípios Mineiros. Sociedade, Contabilidade e Gestão, 15(2), 100–117. https://doi.org/10.21446/scg_ufrj.v0i0.18379

Michener, G., Contreras, E., & Niskier, I. (2018). Da opacidade à transparência? Avaliando a Lei de Acesso à Informação no Brasil cinco anos depois. Revista De Administração Pública, 52(4), 610–629. https://doi.org/10.1590/0034-761220170289

Nunes, G. S. D. F. (2013). Avaliação da transparência pública à luz da legislação brasileira: um estudo nos municípios da região sul do Brasil [Dissertação (mestrado)]. Universidade Federal de Santa Catarina.

Oliveira, L. A. de, Fernandes, M. A. M., Pereira, R. A., & Campos, M. de S. (2018). A Lei de Acesso à Informação e sua Aplicação: Análise da Transparência nos Cinco Maiores Municípios do Alto Paranaíba. Revista Brasileira de Gestão e Engenharia, 9(2), 83–112.

Pires, R. R. C., & Gomide, A. de Á. (2016). Governança e capacidades estatais: uma análise comparativa de programas federais. Revista de Sociologia e Política, 24(58), 121–143. https://doi.org/10.1590/1678-987316245806

Raupp, F. M., & Cunha, D. R. (2010). Transparência por meio de Portais Eletrônicos de Câmaras Municipais. XVII Congresso Brasileiro de Custos.

Raupp, F. M., & Pinho, J. A. G. de. (2013). Os Vereadores Prestam Contas em Portais Eletrônicos? um Estudo Comparativo entre Municípios do Estado da Bahia e de Santa Catarina. Administração Pública E Gestão Social, 5(3), 89–97. https://doi.org/10.21118/apgs.v5i3.462

Raupp, F. M., & Pinho, J. A. G. de. (2015). Prestação de contas no Legislativo local antes e após a Lei de Acesso à Informação. ConTexto - Contabilidade em Texto, 15(29), 30–46.

Richardson, R. J. (1999). Pesquisa Social: métodos e técnicas. Atlas.

Rocha, H. H. N. (2012). Transparência e accountability no Estado Democrático de Direito: reflexões à luz da Lei de Acesso à Informação. Revista do Tribunal de Contas do Estado de Minas Gerais, 85, 84–95.

Santos, M. R. L. dos, Bastos, R. V. G., & Bartoluzzio, A. I. S. de S. (2019). Contribuição da Auditoria Externa para Transparência à Sociedade: Uma Análise da Percepção dos Gestores das Entidades Sem Fins Lucrativos no Estado de Pernambuco. Anais do XI Congresso UFPE de Ciências Contábeis.

RMC

Silva, L. B. da, & Almeida, L. de A. (2022). A implementação da Política de Resíduos Sólidos por governos estaduais: uma análise das capacidades estatais do Estado do Tocantins. Novos Cadernos NAEA, 25(1), 325–345. https://doi.org/10.18542/ncn.v25i1.8684

Silva, L. R. da, Leroy, R. S. D., & Pereira, G. C. (2022). Determinantes da Transparência nas Câmaras Municipais da Região Metropolitana de Belo Horizonte. Congresso USP de Iniciação Científica em Contabilidade.

Silva, M. S. da, & Diniz Filho, J. W. de F. (2019). O comportamento do índice de transparência na gestão fiscal nos três poderes do governo federal. Revista de Auditoria Governança e Contabilidade (RAGC), 7(29), 138–153.

Silva Júnior, S. D. da, & Costa, F. J. (2014). Mensuração e Escalas de Verificação: uma Análise Comparativa das Escalas de Likert e Phrase Completion. Revista Brasileira de Pesquisa de Marketing, Opinião e Mídia, 15, 1–16.

Silva, P. R., & Sena, L. B. (2007). Análise agregada dos municípios mineiros de grande porte quanto à adequação à Lei de Responsabilidade Fiscal (LRF). Revista Contemporânea de Contabilidade, 1(8), 99–119.

Skocpol, T. (1985). Bringing the State Back In: Strategies of Analysis in Current Research. Em P. B. Evans, D. Rueschemeyer, & T. Skocpol (Orgs.), Bringing the State Back in (p. 3–37). Cambridge University Press. https://doi.org/10.1017/CBO9780511628283.002

Souza, C. H. L. de. (2017). Capacidades estatais para a promoção de processos participativos: atributos do aparato burocrático ou condições temporárias para a ação? Sociedade e Cultura, 20(1), 105–126. https://doi.org/10.5216/sec.v20i1.50857

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 5, Pages 68 - 78, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1569

CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

INFLUENCE OF COVID-19 ON FISCAL AGGRESSIVENESS OF ELECTRIC ENERGY SECTOR COMPANIES LISTED ON B3

INFLUÊNCIA DA COVID-19 NA AGRESSIVIDADE FISCAL DAS EMPRESAS DO SETOR DE ENERGIA ELÉTRICA LISTADAS NA B3

This article was accepted and presented at the 3º Congresso UFG de Contabilidade, Controladoria e Finanças, held from December 4 to 5, 2023, in Goiânia, Brazil.

ABSTRACT
This study examines the impact of the COVID-19 pandemic on the tax aggressiveness of companies listed on the Brazilian Stock Exchange (B3) in the electricity sector. A total of 41 companies were analyzed from 2009 to 2022. Tax aggressiveness was assessed using the effective tax payment rate (CASHETR) and Effective Tax Rate (ETR). The primary independent variable of interest was a dummy variable representing the pandemic period (COVID-19), while Return on Assets (ROA), leverage (LEV), and Company Size (TAM) served as control variables. Two panel data regression models are employed to test the hypothesis that COVID-19 influences companies' tax aggressiveness. The findings indicate that companies exhibited increased tax aggressiveness during the COVID-19 period for the dependent variable, CASHETR, thereby supporting the established hypothesis. Regarding the control variables, the results demonstrate that ROA has a significant positive effect on tax aggressiveness, suggesting that companies with higher returns on assets tend to adopt less aggressive tax strategies. The LEV variable yielded varying results across models but was statistically significant in both models. Conversely, the TAM did not show statistical significance. It is concluded that electric power companies engaged in tax management during the COVID-19 pandemic, seeking more effective strategies to reduce tax liabilities and mitigate the impact of the crisis.

Keywords: Tax Aggressiveness, COVID-19, Electricity Sector, Tax Planning.

RESUMO
A presente pesquisa teve por objetivo investigar se a pandemia da COVID-19 impactou a agressividade fiscal das empresas listadas na Bolsa de Valores Brasileira (B3) do setor de energia elétrica. Para isso, foram analisadas 41 empresas durante o período de 2009 a 2022. A agressividade fiscal foi mensurada pela Taxa Efetiva de Pagamento de Tributos (CASHETR) e pela Taxa Efetiva de Tributos (ETR). A variável independente de interesse foi a dummy do período pandêmico (COVID-19), enquanto o Retorno sobre Ativos (ROA), Alavancagem (LEV) e o Tamanho da Empresa (TAM) foram as variáveis de controle. Para testar a hipótese de que a COVID-19 impactou a agressividade fiscal das empresas foram utilizados dois modelos de regressão com dados em painel. Os resultados revelaram que as empresas foram mais agressivas tributariamente durante o período da COVID-19, em relação à variável dependente CASHETR, não refutando a hipótese estabelecida. Em referência às variáveis de controle, os resultados mostraram que: o ROA exibiu um efeito positivo significativo na agressividade fiscal, ao indicar que empresas com maior retorno sobre ativos tendem a adotar estratégias fiscais menos agressivas; a variável LEV apresentou resultado distinto segundo cada modelo, mas, mostrou-se relevante estatisticamente em ambos; já o TAM não demonstrou significância estatística. Conclui-se que as empresas de energia elétrica gerenciaram seus tributos no período da COVID-19, ao buscar estratégias mais efetivas para se pagar menos tributos e, assim, minimizar os efeitos da crise.

Palavras-Chave: Agressividade Fiscal, COVID-19, Setor de Energia Elétrica, Planejamento Tributário.

Laura Bianca Dias Barbosa
Graduada em Ciências Contábeis pela Universidade Federal de Goiás (UFG). E-mail: laura_bianca09@hotmail.com. ORCID iD: https://orcid.org/0009-0005-2123-3449. Lattes iD: https://lattes.cnpq.br/6447259775794983

Lúcio de Souza Machado
Pós-Doutor e Doutor em Psicologia pela Pontifícia Universidade Católica de Goiás (PUC Goiás). Mestre em Controladoria e Contabilidade Estratégica pela Fundação Escola de Comércio Álvares Penteado (FECAP-SP). Docente do curso de Ciências Contábeis na Universidade Federal de Goiás (UFG). E-mail: luciomachado@ufg.br. ORCID iD: https://orcid.org/0000-0003-4434-2830. LATTES iD: http://lattes.cnpq.br/6742400453249031

Michele Rílany Rodrigues Machado
Doutora em Administração pela Universidade de Brasília (UNB). Mestre em Contabilidade pela Universidade de Brasília (UNB). Docente do curso de Ciências Contábeis na Universidade Federal de Goiás (UFG). E-mail: michelemachado@ufg.br. ORCID ID: https://orcid.org/0000-0002-1548-3071. LATTES: http://lattes.cnpq.br/8001352972115912

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 08 November 2023. Proofread: 07 December 2024. New alterations: 01 March 2025. Accepted: 25 March 2025, by Dr. Ewerton Alex Avelar and Dr. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1. INTRODUCTION

The pandemic began in the early months of 2020, when the new coronavirus, SARS-CoV-2, spread worldwide and caused COVID-19. To prevent the spread of the virus, preventive measures were adopted owing to its high transmission rate. Social isolation has been implemented in several countries, resulting in travel restrictions and temporary closure of schools, airports, universities, and non-essential services (Dias et al., 2020). These actions had a significant impact on the Brazilian economy, with a 4.1% drop in Gross Domestic Product (GDP) in 2020 compared to 2019 (Instituto Brasileiro de Geografia e Estatística [IBGE], 2021).

The COVID-19 pandemic has had a significant impact on the global economy (Cassiolato et al., 2021), and the control and isolation measures adopted have resulted in major instabilities and challenges for companies. Mobility restrictions, company closures, and supply chain interruptions have resulted in a generalized economic slowdown in commerce in general (Gullo, 2020).

One of the sectors that showed the most instability during the pandemic period was the electricity sector, characterized by a significant drop in global energy consumption as a result of the shutdown that many companies and industries faced during this crisis (Correa et al., 2021). Many inactive companies stopped demanding electricity, whereas industries, mostly closed or operating with limited capacity, experienced a considerable reduction in their energy consumption (Correa et al., 2021). Information released by the Energy Research Company (EPE) in the National Energy Balance in 2021 shows that the Internal Energy Supply (OIE) in Brazil registered a decrease of 2.2% in 2020 compared to the previous year. With more people working from home and spending more time there, there have been changes in energy consumption patterns, which may have significantly impacted demand. Energy distribution companies have to adapt quickly to changes in demand and consumption patterns (Sampaio, 2022).

This scenario has been quite challenging, given that electricity infrastructure is designed to cope with predictable demand patterns, and the economic uncertainty caused by the pandemic may have affected the ability of electricity companies to obtain financing for projects and investments, as well as investor confidence. This situation has caused these companies to suffer a significant drop in revenue, which has led many of them to look for ways to preserve their liquidity (David, 2021).

Nascimento (2022) pointed out that COVID-19 has had significant consequences for Brazil and the world, affecting several companies that have implemented measures to contain the spread of the virus. In this challenging scenario, the need to preserve financial resources has led many organizations to seek different strategies. One of these is tax avoidance practices (here called tax aggressiveness), such as postponing tax payments and using specific tax benefits for the crisis period, which was essential to sustain these companies during this period (Moraes et al., 2023).

Tax aggressiveness is understood as the use of legal strategies to reduce the tax burden (Andrade et al., 2020; Campos & Dantas, 2022; Xavier et al., 2022), becoming even more crucial in times of crisis when the search for financial efficiency intensifies. This aggressiveness involves managing taxable income to reduce it, and its degree explicitly measures the impetus to reduce the incidence of taxes (Santos & Oliveira, 2020). During the pandemic, several issues linked to tax aggressiveness arose, one of which was the search for tax incentives and specific government support programs to deal with the economic impacts of the crisis. Companies seek to benefit from these measures by taking advantage of opportunities to reduce their tax burdens and obtain financial relief (Manguelly et al., 2023).

The literature (Ariff et al., 2023; Athira & Ramesh, 2023; Kobbi-Fakhfakh & Bougacha, 2023; Khan & Nawaz, 2023; Nascimento, 2022) suggests that tax aggressiveness is affected by elements such as economic crises and extraordinary events such as the COVID-19 pandemic (Nicola et al., 2020). Ariff et al. (2023) showed that companies in financial difficulty had low tax aggressiveness before and during the pandemic, although during the pandemic they observed an increase in tax aggressiveness compared to the pre-pandemic period. In this context, Nascimento (2022), when investigating the influence of the COVID-19 pandemic on the tax behavior of Brazilian non-financial companies listed on the Brazilian capital market from 2010 to 2021, concluded that there was an increase in the level of tax aggressiveness during this period.

In view of the above, this research aims to investigate whether the COVID-19 pandemic has impacted the tax aggressiveness of companies listed on the Brazilian Stock Exchange (B3) in the electricity sector to verify whether these companies have sought tax strategies to reduce their tax burden and maximize their economic and financial results. During the COVID-19 pandemic, this search may have been more recurrent because of the economic uncertainties and financial challenges faced.

This study is justified because it provides results of concrete actions taken from a tax perspective by the management of companies in the electricity sector to deal with the COVID-19 crisis. As such, it adds elements to the literature that have investigated the impact of different crises, such as financial crises, especially COVID-19, on the tax management of entities. It should be noted that other studies that have used COVID-19 as a predictor of tax aggressiveness have not focused their efforts on a strategic and regulated sector like this (Marinho et al., 2022; Nascimento, 2022), which is why this study is innovative in this respect. It also offers insights for further studies using other lenses and sectors to advance our understanding of the effects of critical events on corporate tax practices.

2. LITERATURE REVIEW

2.1 Tax aggressiveness

Given Brazil's high tax burden, companies pay a significant amount of taxes, which is why entrepreneurs have been looking for alternatives to reduce this type of expense. To achieve this goal, it is necessary to carry out analyses and studies of the accounting information available to companies to identify legal alternatives that can maximize their profits (Martelli & Silva, 2016). According to the Brazilian Federal Revenue Service (RFB, 2021), the country has the highest tax burden in Latin America and one of the highest globally, representing approximately 32.45% of the Gross Domestic Product (GDP) in 2019 and 31.58% of the GDP in 2020 (RFB, 2021). As such, taxes have become an essential factor in companies' decision making, and as a result, many are looking for ways to reduce them.

To this end, tax planning is referred to as tax aggressiveness, which can be understood as a way of maximizing company profits through the analysis of tax laws in order to apply them in an advantageous way in the accounting and structuring of activities with favorable taxation. According to Tang (2005) and Martinez and Dalfior (2015), tax aggressiveness is a form of tax planning in which taxpayers use various legal arrangements to reduce their tax costs. In this context, according to Alves (2021) and Brilhante and Alves (2020), a company considered to be tax aggressive uses many incentives made available by the government and other aspects present in tax and corporate legislation to reduce the tax burden and, consequently, increase its liquidity and profitability.

In their seminal study on tax aggressiveness, Hanlon and Heitzman (2010) state that there is still no universally accepted definition and that there is no final concept for tax aggressiveness. Tax avoidance (tax planning) is more linked to more aggressive tax planning by using the legal form of tax legislation to one's advantage in order to reduce the taxes to be paid without exceeding the legal limits (Wang et al., 2020). Therefore, tax aggressiveness can be defined as a set of actions designed to reduce the tax burden and maximize financial results (Lietz, 2013).

To study tax aggressiveness, metrics calculated from accounting data are used to better understand the scenarios in which companies find themselves. These metrics include the Effective Tax Rate (ETR), calculated as the sum of expenses with Corporate Income Tax (IRPJ) and Social Contribution on Net Profit (CSLL) divided by Profit Before Taxes (LAIR); Book-Tax Differences (BTD), defined as the difference between book and tax profits; CASHETR (Effective Tax Payment Rate (CASHETR), calculated by dividing the total amount of direct taxes paid (IRPJ and CSLL) by LAIR.

These metrics are used internationally (Chen et al., 2010; Hanlon & Heitzman, 2010; Wang et al., 2020) and in national (Martinez and Ramalho, 2014; Martinez and Silva, 2017) studies investigating the tax behavior of organizations. For this research, the direct tax rates (IRPJ and CSLL) appropriated as an expense and paid will be adopted, as they are the most commonly found in the Brazilian literature. The interpretation is that the lower the rate, the more tax planning actions are employed by the company. BTD will be disregarded because studies show that it is not appropriate for understanding the level of tax aggressiveness in organizations, but rather earnings management (Magalhães & Ferreira, 2018; Martinez & Leal, 2019).

2.2 Previous studies and research hypothesis

The study proposed by Athira and Ramesh (2023) highlighted the COVID-19 pandemic as a crucial opportunity to assess how companies manage their taxes during a crisis, considering previous tax reforms. The authors found that companies avoided paying taxes during COVID-19 to cope with financial crises such as a lack of cash balances. In addition, the study highlights the importance of fiscal aggressiveness during extreme events, such as the COVID-19 pandemic. These findings emphasize the need to use tax policies in the context of fiscal aggressiveness during the pandemic.

Ariff et al. (2023) analyzed whether the financial crisis was related to fiscal aggressiveness and the COVID-19 pandemic. It used a global database sample comprising 38,958 annual company observations from 32 countries for the period 2015-2020. The results showed an increase in fiscal aggressiveness during the pandemic compared to the pre-pandemic period and that the pandemic intensified the negative relationship between financial crisis and fiscal aggressiveness.

Kobbi-Fakhfakh and Bougacha (2023) analyzed the impact of the COVID-19 pandemic on the fiscal aggressiveness of publicly traded companies in the United States from 2019 to 2021. The results showed that the COVID-19 outbreak triggered an increase in the ETR (Effective Tax Rate (ETR) and a reduction in the BTD (Book-Tax Differences), there was a reduction in tax aggressiveness in the post-pandemic period. Further analysis shows that this effect was mainly due to a reduction in deferred tax expenses. The authors suggest that, due to the significant drop in revenue during the post-pandemic period and the closure of markets, the impact on business was negative. From this study, it is important to highlight some other secondary findings: the pandemic did not cause a significant change in CASHETR; higher financial leverage suggests higher tax payments; CASHETR was lower in the industries most impacted by the pandemic, such as airlines and energy services, among others.

According to Khan and Nawaz (2023), who surveyed 175 Pakistani companies from 2010 to 2021 using the ETR and CASHETR, companies have incentives to engage in aggressive tax practices when managerial benefits outweigh costs, and these practices prevail when companies face financial difficulties. The COVID-19 financial crisis offers significant insights into whether tax aggressiveness differs significantly between the pre-covid-19and post-COVID-19 financial challenges. The results show that financial difficulties had a statistically significant impact on tax aggressiveness. In addition, the study concludes that companies engaged more in aggressive tax practices during periods of financial difficulty.

Brazilian studies that have investigated the impact of crises such as COVID-19 on companies' tax aggressiveness are scarce, and even fewer have explored the impact by sector. Nascimento (2022) investigated the influence of the COVID-19 pandemic on the tax aggressiveness of 326 Brazilian non-financial companies listed on B3 from 2010 to 2021. The results of the multiple linear regression analysis indicated a negative and significant relationship between the tax aggressiveness metrics (ETR and CASHETR) and the variable representing the post-COVID-19 pandemic period. This means that during the pandemic (2020 and 2021), the level of tax aggressiveness of the companies in the sample was higher than that in previous years.

Oliveira and Machado (2023) analyzed the impact of the pandemic on tax avoidance by publicly traded financial and non-financial companies on B3, considering the pre-pandemic (2019), pandemic (2020 and 2021), and post-pandemic (2022) periods. The sample consisted of 200 Brazilian companies listed on B3, of which 36 were financial and 164 non-financial. The results of this study differed from those of Nascimento (2022), as the ETR and CASHETR rates showed no statistically significant differences for the three periods investigated.

Despite not actually researching the effect of COVID-19 on tax avoidance practices, Marques et al. (2022) analyzed the association between the environment of economic uncertainty and the level of tax aggressiveness of companies listed on B3. This scenario can be read as close to that of the pandemic, given the great uncertainty surrounding the economic trajectory of organizations during and after COVID-19. By analyzing data from 252 organizations from 2013 to 2018, they found no positive association between tax aggressiveness and the environment of economic uncertainty.

Specifically, with regard to studies that have somehow analyzed the impact of crises on the fiscal aggressiveness of companies from different B3 sectors, the following results stand out: the average ETR of 59 companies in the electricity sector from 2013 to 2018 was 25% (Santos & Oliveira, 2020); positive association between ETR and the crisis variable (COVID-19) of 453 companies, and the quantile regression test showed that ETR changed during the crisis period at quantiles 0.25 and 0.75 (Costa França, 2024).

Most of the previous studies (Athira & Ramesh, 2023; Ariff et al., 2023; Costa Neta & França, 2024; Kobbi-Fakhfakh, 2023; Marques et al. 2022; Nascimento, 2022; Santos & Oliveira, 2020) have shown that tax aggressiveness is influenced by various factors such as economic crises and extraordinary events such as COVID-19. Thus, based on the foundations presented in this preliminary literature review, the research tests the following hypothesis: H1: Companies in the electricity sector listed on B3 were more aggressive in tax terms during the COVID-19 period.

This hypothesis is based on the premise that the crisis caused by the pandemic significantly affected the electricity sector, leading companies to adopt more aggressive strategies to reduce the incidence of taxes and preserve their liquidity. Considering the particularities of the sector, such as a decrease in energy consumption and operational restrictions, it is plausible to assume that companies have sought ways to face these challenges through more aggressive tax strategies.

3. METHODOLOGICAL PROCEDURES

3.1. Sample and data collection

A total of 63 companies listed on B3 in the electricity sector were surveyed. Subsequently, companies that did not have complete data to calculate the variables for the period between 2019 and 2022 are excluded. Consequently, 22 companies were excluded, resulting in a final sample of 41 companies.

Accounting information was obtained from the financial reports available on the Economática database and the website of the Brazilian Securities and Exchange Commission (CVM). With regard to the period of analysis, it should be noted that 2019 and 2022 were considered to have no impact on COVID-19, with 2019 being the year prior to the appearance of COVID-19 and 2022 being the year of the effective resumption of economic activities. The years 2020 and 2021 were considered to have been affected by COVID-19.

3.2 Variables and analysis procedures

3.2.1 Dependent variables

ETR, calculated by dividing the sum of current and deferred IRPJ and CSLL expenses by LAIR (Martinez & Silva, 2017), was adopted as the dependent variable in this study. The use of this metric is in line with the national and international literature (Martinez & Silva, 2017; Martinez & Ramalho, 2014; Alves, 2021; Hanlon and Heitzman, 2010; Marinho et al., 2021). This rate is an inverse measure of tax aggressiveness, as the lower the effective tax rate, the greater the level of aggressiveness of the company (Hanlon and Heitzman, 2010; Costa, Silva, & Klan, 2023).

In addition, the CASHETR was used as a proxy for tax aggressiveness. This consists of dividing the total amount paid by the company in direct taxes (IRPJ and CSLL) by the LAIR. It is an important metric for understanding how much a company spent on taxes during the analysis period (Alves 2021).

3.2.2 Independent variable of interest

A dummy for the pandemic period was used as the independent variable of interest, with zero indicating the absence of the pandemic period and one indicating its presence. The use of the pandemic period dummy is a crucial strategy in this study on the impact of COVID-19 on the fiscal aggressiveness of companies in the electricity sector listed on B3. This binary variable makes it possible to control for the specific effects of the pandemic on the ETR and CASHETR, isolating them from other influences.

3.2.3 Independent control variables

Independent control variables are those considered potential factors that may influence the results of the research but are not the main focus of the investigation. In this study, the independent control variables adopted were those that stood out in recent research on tax management and tax aggressiveness. Therefore, these variables impact companies' tax aggressiveness but are not directly related to the COVID-19 pandemic (Martinez & Cerize, 2020).

Table 1 shows the control variables used, their descriptions, and the literature (source) used to highlight them.

Table 1 - Control variables

Control variables	Description	Source
ROA (Return on assets)	Company operating profit divided by assets.	(Armstrong et al., 2012; Marinho et al., 2021; Martinez & Cerize, 2020; Martinez & Ramalho, 2014).
LEV (Leverage)	Long-term debt divided by total assets.	(Martinez & Ramalho, 2014; Marinho et al., 2021; Martinez & Cerize, 2020; Martinez & Martins, 2016).
TAM (Size)	Natural logarithm of the company's total assets.	(Arpini, Rotter & Piccoli, 2020; Bis, Martinez, 2017; Proner et. al, 2021; Martinez; Martins, 2016; Wang et al., 2020).

Source: Author's elaboration.

Return on assets (ROA) was used because it indicates the company's operational efficiency and has an inverse relationship with tax aggressiveness. Studies show that companies with higher ROA tend to be less aggressive in their tax practices (Armstrong et al., 2012; Marinho et al., 2021; Martinez & Cerize, 2020; Martinez & Ramalho, 2014). This suggests that the solid generation of profits in relation to total assets may reduce companies' motivation to adopt aggressive tax strategies since they have less need to resort to tax advantages to optimize their financial results.

In relation to leverage (LEV), which represents a company's level of indebtedness, the literature has shown a positive relationship with tax aggressiveness. Studies suggest that companies with higher levels of debt tend to adopt more aggressive tax practices, probably to take advantage of the tax benefits arising from the appropriation of interest on debt (Martinez & Ramalho, 2014; Marinho et al., 2021; Martinez & Cerize, 2020; Martinez & Martins, 2016).

The size of the company can influence tax practices in various ways, but does not follow a clear pattern; therefore, it should be evaluated considering the specific factors of the company and its tax/regulatory environment. Some studies have shown that larger companies may deal differently with a financial crisis (Arpini et al., 2020; Bis and Martinez, 2017; Proner et. al, 2021). Larger companies, despite being more exposed to public scrutiny, have greater incentives and power to influence the political process. Therefore, they are expected to exhibit higher levels of tax aggressiveness (Martinez & Martins, 2016; Wang et al., 2020).

3.2.4 Data analysis technique

To identify the effects of the pandemic on the tax aggressiveness of the sample companies, two econometric models were established. Equations 1 and 2 represent the estimated models for the ETR and CASHETR variables, respectively:

$$ETR_{it} = \beta 0 + \beta 1 * Dummy_{it} + \beta 2 * ROA_{it} + \beta 3 * LEV_{it} + \beta 4 * TAM_{it} + \varepsilon_{it} \; (1)$$

$$CASHETR_{it} = \beta 0 + \beta 1 * Dummy_{it} + \beta 2 * ROA_{it} + \beta 3 * LEV_{it} + \beta 4 * TAM_{it} + \varepsilon_{it} \; (2)$$

In the models proposed above, i and t represent the company and the year; represents the intercept of the regression; and represent the dependent variable of the Effective Rate of Taxation and the Effective Rate of Payment of Taxes on profit, respectively, of company i in year t; is the independent variable of interest represented by the pandemic period dummy, with 0 for the absence of the pandemic period and 1 for its presence; β2, β3, and β4 represent the independent control variables, which are the coefficients determining tax aggressiveness, namely ROA (Return on Assets), LEV (leverage), and TAM (size); and represents the regression error.

Panel data regression was used to test the research hypotheses. According to Martinez and Silva (2017), this is the most appropriate approach given that the information on the selected companies varies over the years. In line with Martinez and Silva (2017) and Fávero (2013), the choice of statistical tool for panel data analysis, whether related to fixed or random effects, requires statistical tests. This allows for the objective choice of the best type of model (simple pooled, panel with fixed or random effects), as well as testing for problems with multicollinearity of the independent quantitative variables, heteroscedasticity, and autocorrelation. To do this, the following flow of analysis was applied: 1) Chow's test to identify whether the data behaved like a simple pooling or a panel of data; 2) Hausman's test which analyzes whether the panel with random effects is the best choice or not; 3) Modified Wald test to identify problems with heteroscedasticity; 4) Inoue and Solo (2006) test to identify problems with serial autocorrelation; and 5) VIF test to analyze problems with multicollinearity.

It should be noted that before applying the econometric models (Equations 1 and 2) and their assumptions, descriptive statistics techniques were used to analyze and identify problems with outliers. Measures of central tendency (mean and median) and data dispersion (standard deviation and coefficient of variation) were analyzed. Once these problems were identified, the winsorization technique was applied to the variables, establishing a probability of 1%. In this procedure, the upper and lower limits are defined using the probability, and these limits are replaced by the highest and lowest remaining values of the established limits. It is important to note that although there is no rule, winsorizations are generally carried out at the 1%, 2.5%, or 10% levels (Becker, 2015).

4. PRESENTATION AND ANALYSIS OF RESULTS

4.1. Descriptive análisis

The data analysis began by checking the descriptive statistics of the dependent variables for the non-pandemic and pandemic periods. The results are presented in Table 2.

Table 2 - Descriptive statistics of the dependent variables

Variable: CASH_ETR							
Description	Statistics	Period without COVID	Period with COVID	Years without a pandemic		Years with a pandemic	
				2019	2022	2020	2021
Mean	0,07775	0,096	0,060	0,083	0,109	0,054	0,065
Median	0,02340	0,045	0,006	0,042	0,059	0,023	0,003
Standard Deviation	0,13725	0,168	0,095	0,114	0,211	0,070	0,116
Coefficient of Variation	1,76527	1,756	1,590	1,383	1,927	1,284	1,782
Minimum	0,00000	0,000	0,000	0,000	0,000	0,000	0,000
Maximum	1,08990	1,090	0,410	0,477	1,090	0,213	0,410
N	116	58	58	29	29	29	29

Variable:ETR							
Description	Statistics	Period without COVID	Period with COVID	Years without a pandemic		Years with a pandemic	
				2019	2022	2020	2021
Mean	0,078	0,083	0,073	0,065	0,101	0,082	0,064
Median	0,016	0,025	0,006	0,024	0,036	0,007	0,006
Standard Deviation	0,153	0,162	0,144	0,100	0,208	0,176	0,106
Coefficient of Variation	1,966	1,962	1,979	1,538	2,062	2,144	1,665
Minimum	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Maximum	1,090	1,090	0,912	0,477	1,090	0,912	0,410
N	116	58	58	29	29	29	29

Source: Author's elaboration.

Table 2 shows that the average ETR variable was approximately 8.3% during the pandemic period and approximately 7.3% during the pandemic period, indicating a reduction of 1%. In addition, this variable, when compared with the nominal variable of 34%, suggests the presence of tax planning in companies. The results obtained are similar to other studies that have also found this decrease (Athira & Ramesh, 2023; Ariff et al., 2023; Kobbi-Fakhfakh & Bougacha, 2023; Khan & Nawaz, 2023; Nascimento, 2022).

It can also be seen that the average of the CASHETR variable is 9.6% in the period without a pandemic effect, and 6% in the pandemic period, indicating a reduction of 3.6%. The results show that there was tax planning for the pandemic period, as shown by the studies conducted by Athira and Ramesh (2023), Ariff et al. (2023), Kobbi-Fakhfakh and Bougacha (2023), Khan and Nawaz (2023) and Nascimento (2022).

The descriptive statistics, especially for the CASHETR variable, show that there was a reduction in companies' tax burden during the most intense period of COVID-19, as can be seen in 2020, and that the average and median obtained corresponded to the lowest tax burden measured (0.054 and 0.023, respectively). Thus, there are signs that companies in the electricity sector have used tools related to tax management by reducing the payments and appropriations made, suggesting that the hypothesis established for this study is not rejected.

4.2. Analysis of the models

A multicollinearity test was applied to check whether the independent variables in the model showed a strong correlation. The results revealed an average VIF of 1.01 for the ROA, LEV, and TAM variables. Because the average value was below 10, it can be concluded that there were no significant multicollinearity problems. The p-values of the Chow test obtained for Equations 1 and 2 (0.000 and 0.000, respectively) indicate that the data behaved as a panel. Therefore, it is necessary to define the treatment effect, whether fixed or random. We used the Hausman test, the results of which indicated that the best model for the two equations was the panel with fixed effects (0.000 and 0.000 for Equations 1 and 2). The results of the Wald test indicated that the models estimated for Equations 1 and 2 present heteroscedasticity problems, given that the p-values obtained were 0.000 and 0.000, respectively. When the serial autocorrelation test was used, the p-values obtained for Equations 1 and 2 were greater than 5% (0.425 and 0.853, respectively). Therefore, no serial autocorrelation problems were detected.

Table 3 presents the results of the regressions used to investigate the effect of COVID-19 on the fiscal aggressiveness of companies in the energy sector. These results allow us to test the hypothesis that these companies adopted more aggressive practices in 2020 and 2021 (the critical period for COVID-19) than in 2019 and 2022 (the period without COVID-19 effects).

Table 3 - Results of the regressions with the dependent variables ETR and CASHETR

Variables	Painel A - ETR		Painel B - CASHETR	
	Coefficient	Robust standard error	Coefficient	Robust standard error
COVID	-0,0203736	0,018455	-0,0385349**	0,014728
	(0,279)		(0,014)	
ROA	0,00253**	0,001202	0,001803	0,001168
	(0,044)		(0,134)	
LEV	-0,00948***	0,001045	0,0042976**	0,012842
	(0,000)		(0,002)	
TAM	0,0354077	0,05034	0,042	0,059919
	(0,488)		(0,489)	
Const	-0,5109822	0,805814	-6214912	0,937916
	(0,531)		(0,513)	
N obs	114		114	

Note: *, ** and *** indicate significance at 10%, 5% and 1%, respectively.

Source: Author's elaboration.

The results in Table 3 show that COVID-19 positively influences the fiscal aggressiveness of the sample companies when the dependent variable is CASHETR. The coefficient for the COVID variable, which represents the dummy for the pandemic period when associated with CASHETR, is -3.85%, indicating that holding all other variables constant, an increase is associated with a decrease of approximately 0.0385 units in the dependent variable CASHETR, which suggests that the variable is statistically significant. This finding corroborates the literature (Athira and Ramesh, 2023; Ariff et al., 2023; Kobbi-Fakhfakh and Bougacha, 2023; Khan and Nawaz, 2023; Nascimento, 2022).

With regard to the dependent variable ETR, the coefficient for the COVID variable is -2.04%. This indicates that, holding all other variables constant, an increase of one unit in COVID is associated with a decrease of approximately 0.00204 units in the dependent variable ETR; however, it is not statistically significant in explaining the variability in ETR at a significance level of 5%. In other words, the presence or absence of COVID does not have a significant effect on ETR. This result is not in line with the studies by Athira and Ramesh (2023), Khan and Nawaz (2023) and Nascimento (2022), but it is important to note that these studies had different samples from this research, which may be a plausible explanation for the difference in results.

These findings allow us to state that the established hypothesis that companies in the electricity sector listed on B3 were more aggressive in fiscal terms during the COVID-19 period cannot be refuted since the evidence shows an increase in the fiscal aggressiveness of companies during the pandemic. This is reflected in the model, in which the dependent variable is CASHETR. Although the other dependent variable did not confirm this premise, the descriptive data showed that there was also a reduction in the percentage of taxes recognized during COVID-19.

This is in line with what many previous studies have concluded that in periods of crisis, when companies go through various financial difficulties, many of them use aggressive tax strategies to meet their targets and capital needs (Khan et al. 2017; Dang & Tran, 2021). However, it is worth considering that the impact on the tax payment rate, CASHETR, may be related to the decrease in the volume of companies' activities and not only to more pronounced tax avoidance practices. Further research is required to uncover this situation. This analysis is based on the fact that the rate inherent in the payment of taxes seems to better reflect the scenario under investigation. It more accurately portrays the financial actions taken to deal with the crisis because it is more sensitive to capturing the fiscal policies and strategies undertaken by organizations to preserve financial resources. The results prove that during the COVID-19 period (2020–2021), there was a significant reduction in tax payments by companies in the electricity sector.

The other variable, despite being frequently used to investigate the degree of tax aggressiveness, includes tax expenses and revenues that will affect the tax burden in future periods; therefore, it does not seem to be the most suitable for understanding the effects of extraordinary events due to the inexpressive window of data for study. Although this finding refutes this hypothesis, it is in line with those of other studies (Kobbi-Fakhfakh & Bougacha, 2023; Oliveira & Machado).

ROA, when associated with CASHETR, is 0.18%. This indicates that holding all other variables constant, an increase in ROA is associated with an increase of approximately 0.0018 units in the dependent variable, CASHETR. However, the p-value is 0.134, which suggests that ROA is not statistically significant in explaining the variability in CASHETR at the 5% significance level, not corroborating Nascimento (2022). However, this study looked at all non-financial companies listed on B3, which differs from the current study, which only looked at companies in the electricity sector. When related to the ETR variable, ROA is 0.25%, indicating that holding all other variables constant, an increase of one unit in ROA is associated with an increase of approximately 0.0025 units in the dependent variable, ETR. This suggests that ROA is statistically significant in explaining the variability in ETR at the 5% level, which is in line with Nascimento (2022) and Ariff et al. (2023).

When analyzing the LEV variable in relation to CASHETR, an index of 0.43% was found, which means that keeping all the other variables constant, an increase in LEV is related to an increase of approximately 0.0043 units in the dependent variable CASHETR. The z-value associated with this coefficient is 3.35, and the p-value is 0.002, indicating that this variable is statistically significant in explaining the variability in CASHETR. These results corroborate what was shown in the findings of Nascimento (2022) and Ariff et al. (2023). However, when relating it to ETR, the LEV coefficient is -0.95%, indicating that keeping all other variables constant, an increase of one unit in LEV is associated with a decrease of approximately 0.0095 units in the dependent variable ETR. The z-value associated with this coefficient is -9.07, and the p-value is 0, indicating that the LEV variable is statistically significant in explaining the variability in ETR at a 5% significance level. This result is not consistent with the findings of Ariff et al. (2023), Athira and Ramesh (2023), and Nascimento (2022), where the coefficients obtained were positive.

In addition, the TAM variable has a coefficient of 0.42, which means that the larger the size, the greater the CASHETR. However, the p-value is 0.489, indicating that TAM is not statistically significant in explaining the variability of CASHETR. When related to the ETR, the TAM variable also had no significant effect. These results diverge from the study proposed by Nascimento (2022), who compared all non-financial companies in B3.

5. FINAL CONSIDERATIONS

The aim of this study was to investigate whether COVID-19 had an impact on the fiscal aggressiveness of companies listed on B3 in the electricity sector. To this end, we hypothesized that companies in this sector were more fiscally aggressive during the COVID-19 period (2020 and 2021) than during the other two periods (2019 and 2022). Regression models with fixed-effects panel data were applied to test this hypothesis.

The results showed that the research hypothesis could not be refuted, since the COVID-19 variable proved to be statistically relevant during the pandemic period, indicating that companies were more aggressive when the result of this variable was associated with CASHETR. In other words, companies in the sector were more tax aggressive during the pandemic period, corroborating Athira and Ramesh (2023) and Ariff et al. (2023), Khan and Nawaz (2023) and Nascimento (2022).

It should be noted that no statistically significant results were found in the analysis of the ETR variable. However, there was a reduction in the rate compared to its nominal value, possibly due to tax planning strategies adopted during the period, suggesting an increase in the degree of tax aggressiveness of the companies in question. This conclusion can also be drawn when examining the results of the descriptive statistical analysis, which revealed a decrease in the tax payment rate during the pandemic. This reduction was significantly lower than the nominal rate of IRPJ and CSLL (34 %), and the rate found in another study in the sector (22 %) (Santos & Oliveira, 2020).

This study adds new elements to the literature investigating the impact of crises and extraordinary events on tax management, as most studies show that companies adopt tax reduction actions during a crisis. This is because an important sector of B3, which was greatly affected by COVID-19, was investigated in isolation. The findings show that companies collected less tax during the pandemic, as they looked to tax strategies for mechanisms to cope with the financial crisis and, in some way, improve their economic performance. As a practical contribution, this study demonstrates to different users of accounting information, such as financial analysts and supervisory bodies (Receita Federal do Brasil), that managers in the electricity sector took tax actions during the health crisis to achieve their goals.

In addition, it is essential to highlight as a limitation of this study, the approach of only one sector, although it is of great relevance to the government and society, and one that has been greatly affected by COVID-19. No similar studies were identified that could be used to compare results. In this context, it is recommended that further research be carried out on tax aggressiveness in different sectors and in different countries within the same sector in order to assess the impacts on companies' tax behavior resulting from COVID-19 and other extraordinary situations such as financial crises. This would provide a more in-depth understanding of tax practices in times of crisis and the extent to which managers seek more aggressive alternatives to deal with them.

REFERENCES

Alves, C. S. (2021). *Uma revisão da literatura sobre agressividade tributária*. Trabalho de Conclusão de Curso, Universidade de Brasília, Brasília, Distrito Federal, Brasil.

Andrade, F. D. O., Cordeiro, F. A., & Bressan, V. G. F. (2020). Agressividade Fiscal e seus Efeitos na Rentabilidade das Empresas dos Setores Regulados e Não Regulados listadas na B3. *Anais do USP International Conference in Accounting,* São Paulo, SP, Brasil.

Ariff, A., et al. (2023). Financial distress and tax avoidance: the moderating effect of the COVID-19 pandemic. *Asian Journal of Accounting, 8*(3), 279-292.

Armstrong, C. S., Blouin, J. L., & Larcker, D. F. (2012). The incentives for tax planning. *Journal of Accounting and Economics, 53*(1), 391-411.

Arpini, P. C., Ritter, P. C., & Piccoli, M. R. (2020). Influência da agressividade tributária no desempenho das empresas listadas na B3. *In Congresso USP de Iniciação Científica em Contabilidade, São Paulo* (Vol. 17).

Athira, A., & Ramesh, V. K. (2023). COVID-19 and corporate tax avoidance: International evidence. *International Business Review, 32*(4), 102143.

Becker, J L. (2015). *Estatística básica: Transformando dados em informação*. Porto Alegre: Bookman.

Bis, C., & Martinez, A. L. (2017). Agressividade Fiscal em Empresas Brasileiras com Controle de Capital Estrangeiro. *Anais da EnANPAD*, São Paulo, SP, Brasil.

Brilhante, J. W. M., & Alves, M. de A. (2020). Planejamento tributário como ferramenta para maximização de lucros: uma revisão de literatura. *Revista Campo do Saber, 6*(1), 46-58.

Campos, L. A., & Dantas, J. A. (2022). Múltiplas Faces da Carga e da Agressividade Tributária dos Bancos Brasileiros, a partir de Variações da Effective Tax Rate. *Anais do XVI Congresso ANPCont*, Foz do Iguaçu, PR, Brasil.

Cassiolato, J. E., et al. (2021). Novas tecnologias digitais, financeirização e pandemia COVID-19: transformações na dinâmica global produtiva, no papel do Estado e impactos sobre o CEIS. *Cadernos do Desenvolvimento, 16*(28), 51-86.

Chen, S., Chen, X., Cheng, Q., & Shevlin, T. (2010). Are family firms more tax aggressive than non-family firms? *Journal of Financial Economics, 95*(1), 41–61.

Correa, J. M., et al. (2021). O impacto da pandemia no setor elétrico. *Revista Mythos, 15*(1).

Costa, F. C., Silva, J. C. Q., & Klann, R. C. (2023). Relação entre remuneração variável de executivos e agressividade tributária: o papel moderador da cultura nacional. *XVII Congresso Anpcont,* São Paulo, SP.

Costa Neta, M. I. da, & de França, R. D. (2024). Impacto da crise econômica causada pela pandemia do COVID-19 na effective tax rate de empresas brasileiras. GCG: *revista de globalización, competitividad y gobernabilidad, 18*(2), 35-48.

Dang, V. C., & Tran, X. H. (2021). The impact of financial distress on tax avoidance: An empirical analysis of the Vietnamese listed companies. *Cogent Business & Management, 8*(1), 1953678.

David, F. M. (2021). *O impacto da pandemia de COVID-19 em pequenas e médias empresas no Rio de Janeiro*. Dissertação de mestrado, Fundação Getúlio Vargas, Rio de Janeiro, RJ, Brasil.

Dias, J. A. A., et al. (2020). Reflexões sobre distanciamento, isolamento social e quarentena como medidas preventivas da COVID-19. *Revista De Enfermagem Do Centro-Oeste Mineiro*, 10.

E*mpresa de Pesquisa Energética*. (2020). Balanço COVID-19 - Impactos nos mercados de energia no Brasil: 1º semestre de 2020. https://www.epe.gov.br/pt/publicacoes-dados-abertos/publicacoes/balanco-COVID-19-impactos-nos-mercados-de-energia-no-brasil-1-semestre-de-2020

Fávero, L. P. L. (2013). *Dados em painel em contabilidade e finanças: Teoria e aplicação. Brazilian Business Review*, 10 (1), 131-156.

Gullo, M. C. R. (2020). A economia na pandemia COVID-19: algumas considerações. *Rosa dos Ventos, 12*(3).

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics, 50*(2–3), 127–178.

Instituto Brasileiro de Geografia e Estatística [IBGE]. (2021). PIB cai 4,1% em 2020 e fecha o ano em R$ 7,4 trilhões. Agência de Notícias IBGE. https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/30165-pib-cai-4-1-em-2020-e-fecha-o-ano-em-r-7-4-trilhoes#:~:text=Em%202020%2C%20tendo%20em%20vista,s%C3%A9rie%20hist%C3%B3rica%2C%20iniciada%20em%201996

Inoue, A., & Solon G. (2006) A Portmanteau test for serially correlated errors in fixed effects models. *Econometric Theory* 22: 835–851.

Khan, M., Srinivasan, S. & Tan, L. (2017). Institutional Ownership And Corporate Tax Avoidance: New Evidence. *The Accounting Review, 92* (2), 101–122.

Khan, M. T., & Nawaz, F. (2023). Analysis of the effect of Financial Distress on Tax avoidance during the COVID-19 Financial Crisis: Evidence from Pakistan. *Review of Applied Management and Social Sciences, 6*(1), 45-62.

Kobbi-Fakhfakh, S., & Bougacha, F. (2023). The impact of the COVID-19 pandemic on corporate tax avoidance: evidence from S&P 500 firms. *Journal of Financial Reporting and Accounting, 21*(4), 847-866.

Lietz, G. M. (2013). *Tax Avoidance vs. Tax Aggressiveness: A Unifying Conceptual Framework* (SSRN Scholarly Paper 2363828). https://doi.org/10.2139/ssrn.2363828

Manguelly, E. L. L., et al. (2023). Um Estudo Sobre Os Incentivos Federais No Período Da Pandemia De COVID-19. GeSec: *Revista De Gestão e Secretariado, 14(1), 1225-1242.*

Magalhães, R. A., & Ferreira, L. F. (2018). Relação entre o gerenciamento tributário e a evidenciação de passivos contingentes tributários em empresas listadas no Novo Mercado da [B] 3. *Revista de Gestão, Finanças e Contabilidade,* 8(2), 82-100.

Marinho, L. L. da S., Almeida, L. M. R. de, & Machado, L. de S. (2022). A influência da qualidade de auditoria na tax avoidance de empresas brasileiras listadas na B3. *Revista de Contabilidade e Controladoria, 14*(1), 115-132.

Marinho, L. L. da S., Carmo, C. H. S. do, & Machado, L. de S. (2021). Agressividade Fiscal e Investimentos de Capital em Empresas Brasileiras do Setor de Bens Industriais Listadas na B3. *Anais do 21° USP International Conference in Accounting*, São Paulo, SP, Brasil.

Marques, V. A., et al. (2022). Incerteza econômica e nível de agressividade tributária das empresas listadas na B3. *Revista de Educação e Pesquisa em Contabilidade (REPeC), 16(1).*

Martelli, F. P., & Silva, A. de B. (2016). Influência da carga tributária sobre o crescimento das organizações. *Revista Faculdades do Saber, 1*(01), 7-16.

Martinez, A. L., & Cerize, N. M. F. (2020). A influência da estrutura de controle na agressividade tributária corporativa. *Enfoque: Reflexão Contábil, 39*(2), 153-165.

Martinez, A. L., & Silva, R. F. da. (2017). Agressividade fiscal e o custo de capital de terceiros no Brasil. *Revista de Gestão, Finanças e Contabilidade, 7*(1), 240-251.

Martinez, A. L., & Dalfior, M. D. (2015). Agressividade fiscal entre companhias controladoras e controladas. *Revista da Receita Federal: estudos tributários e aduaneiros, 2*(1), 344-362.

Martinez, A. L., & Leal, L. V. (2019). Conformidade contábil-fiscal e gerenciamento de resultados contábeis no Brasil. *RACE-Revista de Administração, Contabilidade e Economia, 18*(1), 9-30.

Martinez, A. L., & Martins, V. A. M. (2016). Alavancagem Financeira e Agressividade Fiscal no Brasil. *Revista de Contabilidade da UFBA, 10*(3), 5-22.

Martinez, A. L. & Ramalho, G. C. (2014). Family Firms and Tax Aggressiveness in Brazil. *International Business Research, 7*(3), 129-136.

Moraes, F. A., et al. (2023). *Desempenho das respostas adotadas no combate à pandemia de COVID-19: um comparativo dos determinantes sociopolíticos e macroeconômicos da China e dos EUA.* Dissertação de mestrado, Universidade Federal do Maranhão, Maranhão, MA, Brasil.

Nascimento, D. D. M. (2022). *Impacto da Pandemia do COVID-19 no nível de agressividade fiscal das empresas brasileiras.* Trabalho de Conclusão de Curso, Universidade Federal do Rio Grande do Norte, Natal, RN, Brasil.

Nicola, M. et al. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International journal of surgery, 78, 185-193.*

Oliveira, V. H., & Machado, L. S. (2023, setembro). Efeitos da pandemia da COVID-19 no tax avoidance das empresas financeiras e não financeiras listadas na b3. *Anais do 13º Congresso UFSC de Controladoria e Finanças. Florianópolis, SC.*

Proner, C. et al. (2021). Influência da Governança Corporativa na Agressividade Tributária em Empresas Listadas na B3. *Anais do XVIII Congresso USP de Iniciação Cientifica em Contabilidade, São Paulo, SP, Brasil.*

Receita Federal do Brasil [RFB]. (2021). Carga Tributária no Brasil 2020: Análise por Tributo e Bases de Incidência. https://www.gov.br/receitafederal/pt-br/centrais-de-conteudo/publicacoes/estudos/carga-tributaria/carga-tributaria-no-brasil-2020/view

Sampaio, T. D. S. (2022). *O equilíbrio econômico-financeiro das distribuidoras de energia elétrica na pandemia da COVID-19: efeitos no setor elétrico e atos regulatórios.* Trabalho de conclusão de curso. Universidade Federal do Pampa, São Borja, RS, Brasil.

Santos, D. G. dos, & Oliveira, A. S. de. (2020). Agressividade fiscal e a lucratividade nas empresas do setor de energia elétrica do Brasil. *Revista Catarinense da Ciência Contábil*, 19, 1-18, e3044.

Tang, T. Y. H. (2005). Book-Tax Differences, a Proxy for Earnings Management and Tax Management - Empirical Evidence from China. *Social Science Research Network*, 10.

Xavier, O. C., et al. (2022). Identificação de evasão fiscal utilizando dados abertos e inteligência artificial. *Revista de Administração Pública, 56(3), 426-440.*

Wang, F., Xu, S., Sun, J., & Cullinan, C. P. (2020). Corporate Tax Avoidance: A Literature Review and Research Agenda. *Journal of Economic Surveys*, *34*(4), 793–811.

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 6, Pages 79 - 91, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1603

CRCMG
CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

INDEPENDENT AUDIT ROTATION AND EARNINGS MANAGEMENT: AN ANALYSIS OF THE BRAZILIAN AGRICULTURAL SECTOR

RODÍZIO DE AUDITORIA INDEPENDENTE E GERENCIAMENTO DE RESULTADOS: UMA ANÁLISE DO SETOR AGROPECUÁRIO BRASILEIRO

This article was accepted and presented at the XVII Congresso ANPCONT, held from November 29 to December 1, 2023, in São Paulo, Brazil.

ABSTRACT
This study aimed to verify how the earnings management of companies in the agricultural sector is affected by the rotation of independent auditors. A descriptive study with a quantitative approach was carried out. The research sample comprised Brazilian companies listed on B3 in the agricultural sector from 2012 to 2022. Panel data regression with the Pae (2005) model was used to estimate the accruals. The results showed that the FCO (Operating Cash Flow) variables were significant at 99%, which allows us to affirm that they impact the sample's earnings management in the period analyzed. Similarly, when analyzing the variable AT (Total Accruals), there was a high average value (11.20), indicating higher incidences of earnings management in some years. When examining whether the type of rotation influences the level of earnings management, the result showed that when the exchange is voluntary, earnings management is (2.09) higher. In addition, when testing whether the replacement of the independent auditor for a Big-Four company influences the level of earnings management, it was found that changes of Big-Four/Non-Big-Four and Non-Big-Four/Big-Four did not have a sufficient sample to calculate the significance of the study, showing that this is less common in the agricultural sector. Even so, it can be seen that the exchanges of Non-Big-Four to Non-Big-Four have lower earnings management than the others.

Keywords: audit firm, operating cash flow; audit rotation; earnings management.

RESUMO
O objetivo do presente estudo consiste em verificar como o gerenciamento de resultados das empresas do setor agropecuário é afetado pelo rodízio de auditoria independente. Para tanto, realizou-se uma pesquisa descritiva, com abordagem quantitativa. A amostra da pesquisa compreendeu as companhias brasileiras listadas na B3 do setor agropecuário no período de 2012 a 2022. Utilizou-se de regressão de dados em painel com o modelo de Pae (2005) para estimação dos *accruals*. Os resultados encontrados evidenciaram que as variáveis de FCO (Fluxo de Caixa Operacional) foram significativas a 99%, o que permite afirmar que estas impactam o gerenciamento de resultados da amostra no período analisado. De mesmo modo, ao se analisar a variável AT (*Accruals* Totais), apresentou-se um valor médio alto (11,20), sinalizando a ocorrência de maiores incidências da prática de gerenciamento de resultados, pontualmente, em alguns anos. Ao se examinar se o tipo de rodízio influencia o nível de gerenciamento de resultados, o resultado mostrou que, quando a troca é voluntária, o gerenciamento de resultado é (2,09) maior. Ademais, ao testar se a substituição do auditor independente para uma empresa *Big-Four* influencia o nível de gerenciamento de resultados, verificou-se que as trocas de *Big-Four*/Não *Big-Four* e Não *Big-Four*/*Big-Four* não obtiveram amostra suficiente para se calcular a significância do estudo, mostrando que, no setor agropecuário, isso é menos comum de acontecer. Ainda sim, é possível observar que as trocas de não *Big-Four* para não *Big-Four* possuem um gerenciamento de resultado menor comparado com as demais.

Palavras-chave: firma de auditoria, fluxo de caixa operacional; rodízio de auditoria; gerenciamento de resultados.

Daniel Eduardo de Oliveira
Doutorando em Economia aplicada (Esalq/USP). Mestre em Controladoria e contabilidade (UFMG). Especialista em Gestão financeira. Especialista em Contabilidade no Agronegócio. Pesquisador de grãos no CEPEA (Esalq/USP). E-mail: daniel@contadordocampo.com.br. ORCID iD: https://orcid.org/0009-0001-0936-9096

Michele Cristina Bueno de Sena Tomaz
Bacharel em Ciências Contábeis – Unicentro Newton Paiva. Pós-graduada em Gestão e Controladoria – Unicentro Newton Paiva. MBA em gestão contábil e tributária - Faculdade Novos Horizontes. Mestranda em Contabilidade e Controladoria pela UFMG. E-mail: tchelesena@hotmail.com Orcid: https://orcid.org/0009-0008-8534-1192

Laura Edith Taboada Pinheiro
Doutora em Contabilidade e Finanças pela Universidad de Zaragoza. Professora do Programa de Pós-Graduação em Controladoria e Contabilidade do Departamento de Ciências Contábeis da Universidade Federal de Minas Gerais (UFMG). E-mail: ltaboada@face.ufmg.br Orcid: https://orcid.org/0000-0002-4511-7208

Juliano Lima Pinheiro
Doutor em Contabilidade e Finanças pela Universidad de Zaragoza. Professor do Programa de Pós-Graduação em Controladoria e Contabilidade do Departamento de Ciências Contábeis da Universidade Federal de Minas Gerais (UFMG). E-mail: julianopinheiro@face.ufmg.br. Orcid: https://orcid.org/0000-0003-0715-2237

José Roberto de Souza Francisco
Professor Associado do Departamento de Ciências Contábeis e Controladoria Finanças da UFMG. Professor Efetivo do Mestrado/Doutorado em Ciências Contábeis do CEPCON/FACE/UFMG. Doutor em Finanças, CEPEAD/UFMG (2014). Mestrado Profissional em Administração pela FEAD-MINAS Centro de Gestão Empreendedora (2006). Membro do GET-CRC/MG (Grupo de Estudos Técnicos de Normas Contábeis do Conselho Regional de Contabilidade de Minas Gerais). E-mail: jroberto@face.ufmg.br ORCID: https://orcid.org/0000-0002-1880-5304

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 05 February 2024. Proofread: 27 December 2024. New alterations: 20 January 2025. Accepted: 25 March 2025, by Dr. Ewerton Alex Avelar and Dr. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1. INTRODUCTION

Brazil is internationally known for its great production capacity in the agricultural sector. According to the Institute for Applied Economic Research (IPEA), in a note published in February 2023, the agribusiness trade balance began the year with a surplus of US$8.69 billion. This figure was much higher than the total trade balance surplus of US$2.61 billion (Kreter et al., 2023), and the new record is due to the 16.4% increase compared to January 2022.

In addition, Brazil is the world's third-largest exporter of corn, behind only the United States and Argentina. Regarding coffee, the Brazilian harvest was a record in 2022, according to the Brazilian harvest monitoring bulletin (Conab, 2023). Another point is that Brazil is the world's largest producer and exporter of soybeans, accounting for 50% of world trade (Embrapa, 2021). However, companies in the sector often need to use third-party capital to finance potential productive growth. With the public going to raise funds from third parties, stakeholders have emerged more routinely. With it, there is a need to generate greater reliability, especially regarding access to reliable information.

In this context, independent auditing can significantly influence publicly traded companies, given that these companies are increasingly inserted in an environment that demands transparency and reliability in the financial reports published on an ordinary basis (Pereira & Vilaschi, 2006; Martins, Oliveira, Niyama & Diniz, 2014). This is because they are fundamental tools in the decision-making process of investors and are the main source of information on the financial health and strategic planning of business organizations (Paulo, 2007).

However, Hendriksen and Van Breda (1992) point out that profits (or losses) can be partially distorted by arbitrary accounting choices made by managers, bringing with it a potential risk for investors. When these decisions are made on a discretionary basis and within the framework of accounting principles, while taking advantage of contractual deficiencies, the limited rationalities of interest groups, or the asymmetry of information in the market, this is called earnings management (El Diri, 2018).

This term was defined by Healy and Wahlen (1999) as the phenomenon of managers manipulating the company's economic performance through accounting choices. Although accruals (the non-financial part of the result) record the effective economic profit or loss of entities, they are also liable to be used for arbitrary purposes by managers, becoming, in their discretionary element, a proxy for earnings management (Martinez, 2008).

In other words, this earnings management can occur through differentiated accounting treatments or economic decisions that influence the entity's cash flows, investments, or production (El Diri, 2018). These actions seek to manipulate the information disclosed in the reports and, consequently, the interpretation of interest groups. Given this, the independent audit becomes one of the mechanisms by which shareholders can monitor corporate decisions and actions. The fact that it is responsible for verifying the accuracy and reliability of the data contained in the financial statements lends credibility to the information (Ribeiro & Coelho, 2018).

In auditing corporate governance practices and dealing with stakeholders, Law (2011) points out that the aim is to meet the requirements of all stakeholders, thus maximizing the interests of both parties. In addition, the need for improvement and value creation is highlighted through timely and periodic disclosure of the risks involved and the practices explored to minimize the risks, serving stakeholders.

Therefore, transparency is one of the basic principles of corporate governance, mitigating the asymmetry of information in companies and being a necessary condition for earnings management, as pointed out by Consoni, Colauto, de Lima (2017), and Schipper (1989). Because of this, Bortolon, Neto and Santos (2013) recognize independent auditing as one of the possible mechanisms for increasing transparency in the manager-investor relationship, admitting that, according to these authors, the purpose of independent auditing "is, through impartial investigation and recognized technical capacity, to endorse the financial statements" (Bortolon, Neto & Santos, 2013, p. 28).

In this context, the relationship between governance and stakeholders lies in developing governance systems that minimize their concerns and challenges. According to McGahan (2021), some questions about the function of governance systems are studied in different streams, such as comparative governance, adaptation of governance, and governance mechanisms (McGahan, 2021).

Therefore, auditing is important in corporate governance, earnings management, and the agricultural sector. With this in mind, the following research problem arises for this study: Is the use of earnings management by companies in the agricultural sector impacted by the rotation of independent auditors?

Based on this problem, the general objective is to investigate whether the replacement of the independent auditor impacts earnings management in companies in the agricultural sector listed on B3 between 2012 and 2022. The specific objectives are to analyze whether the data related to earnings management are divergent when there has been voluntary or mandatory rotation of the independent auditor; and whether there are differences between the observed levels of earnings management when the independent auditor has been replaced by companies considered Big-Four (Deloitte Touche Tohmatsu, Ernst & Young, KPMG and PriceWaterhouse Coopers) or not.

This research contributes to the discussion of the impacts of earnings management through the need for audit firms and partners to rotate auditors within five years, as established by law. In this scenario, the study highlights how the rotation and exchange of companies considered Big-Four or Non-Big-Four impact earnings management in Brazilian agribusiness companies. This is because companies in this sector have increasingly sought greater transparency on the capital markets, often adopting a set of management procedures widely discussed today. Therefore, audit rotation and the size of the audit firm can signal to the market that independent auditing is a tool that enables greater optimization in generating reliable information for external users of financial information.

2. LITERATURE REVIEW

2.1 Corporate governance

Corporate governance is discussed and perceived worldwide, given its importance in management and contribution to decision-making. According to Chagas (2007), this expression came from the English term Corporate Governance, representing how shareholders manage their company. In light of this, according to the Brazilian Institute of Corporate Governance (IBGC, 2015), corporate governance is defined as a system that directs, monitors, and encourages companies and other organizations, encompassing the relationships between shareholders, the board of directors, management, supervisory bodies, and other stakeholders. In addition, good governance practices aim to preserve and optimize long-term economic value, facilitate access to resources, and promote the quality of management, the longevity of organizations, and the common good.

Delving deeper into the literature on corporate governance, Aguiar (2002) presents two figures contained in corporate governance: the principal and the agent. The principal is represented by the investor, shareholder, or creditor, those with a general interest in the company's best performance, also known as stakeholders. On the other hand, agents are represented by administrators who may or may not act in the interests of stakeholders, generating what are known as agency conflicts. This conceptualization is necessary to understand and identify the importance of governance as an influential agent in this context.

Given the above, corporate governance is directly linked to the management and administration of companies, thus generating an issue, the Agency Theory. Jensen and Meckling (1976) point out that the Agency Theory identifies the problems inherent in the fact that the investor is not linked to the company's direct management. This raises the issue of information asymmetry between investors and management, which, through transparency, seeks to be minimized, as this is one of the basic principles of corporate governance (IBGC, 2015). This clarifies the power of influence, the possibility of informational asymmetry, and the management of results by the agent responsible for management.

Therefore, informational asymmetry can be characterized as incomplete information between the parties. Milgrom and Roberts (1992) state that informational asymmetry is when one of the parties to the transaction does not have all the information necessary to ascertain whether the proposed contract terms are mutually admissible and will be complied with. That said, the importance and necessity of submitting to an independent audit are reinforced to ensure investors' reliability.

In this context, independent auditing is fundamental to guaranteeing the reliability of information from company management through financial statements, which are the object of information for decision-making by investors and stakeholders. Thus, control mechanisms are needed to help align interests between internal and external agents.

However, corporate governance can also considerably affect the auditor's ability to identify management misstatements and the outcome of negotiations between the auditor and the client on audit adjustments (Keune & Johnstone, 2012). Given that previous studies have shown that governance focuses on controls and stakeholder interests, these facts should be analyzed in terms of the maturity and knowledge of the independent auditor.

Bortolon et al. (2013) also mentioned some internal governance procedures that can affect the independence and costs of audit services, such as the performance of boards of directors and audit committees. In this view, the literature can be divided into those investigating the determinants of audit costs and those verifying the risks and effects of the external auditor's loss of independence. This raises the question of the length of the audit mandate and its rotation, as set out in Instruction 308 (CVM308/99).

About the services provided by audit firms and the influence of corporate governance, Myers et al. (2003) portray that the audit firm can conduct an audit effectively and efficiently over the engagement periods, as well as having experience and competence in the client's business acquired by the auditors over a period. Furthermore, auditors can limit the discretionary accruals management, which indicates when the audit mandate is extended.

2.2 Audit rotation

On May 14, 1999, the Securities and Exchange Commission (CVM) published Instruction N. 308 (CVM308), which provides for the registration and exercise of independent auditing activities within the scope of the securities market. In this instruction, it was established that the independent auditor may not provide services to the same client for more than five consecutive years, counted from the date of the instruction, and that the replaced auditor may not be rehired for less than three years. This act instituted what came to be known colloquially as the rotation of auditors. According to Oliveira and Santos (2007), adopting rotation aimed to mitigate the lack of credibility in the financial market due to the discontinuity of financial institutions and the damage they caused to their account holders.

According to Formigoni, Pompa, Soares, and Paulo (2008), there are two types of audit rotation: audit firm and auditor rotation. The first consists of the commercial break between the audit firm and the client; the second refers to the replacement of the professionals who carry out the audit activities without a commercial break between the audit firm and the client.

In addition to compulsory rotation, there is voluntary rotation in which, for some reason, the audit firm is replaced by another within five years. Sprenger, Silvestre, and Laureano (2016) mention that companies that receive a modified audit report are likely to replace their independent auditors, and they conclude that the so-called Big Four companies are less vulnerable to voluntary rotation.

Turnover has become a much-studied subject in the literature, as it influences the relationship between auditors and their clients and the entire audit firm market, thus questioning its effectiveness (Quevedo & Pinto, 2014). In addition, the obligation to rotate auditors is not unanimous around the world, as there is debate as to whether this practice maximizes the independence and quality of the external audit. Oliveira and Santos (2007) presented a table with the positive and negative aspects of independent audit rotation, based on Brazilian and international studies, as shown in Figure 1.

Figure 1 - Positive and negative aspects of independent audit rotation

Positive aspects	Negative aspects
a. It socializes technical knowledge because it breaks the monopoly of knowledge and auditing practice in a given segment; b. It satisfies the public by breaking long-term relationships, giving certain users of financial statements a perception of greater independence; c. The profile of the auditor in companies subject to rotation changes. A more technical profile of the auditor is favored over a commercial profile that generates new work; d. It requires greater attention from the auditor due to the frequent process of exchange and exposure of their working papers to other auditors, successors, or reviewers; e. It focuses the auditor's attention on the shareholder and not on management; f. It changes the audit methodology with a concentrated focus on mandatory procedures and greater objectivity in the allocation and focus of audit tests; g. It mitigates the lack of state supervision, since the possibility of the successor auditor having access to the working papers relating to auditing the companies' financial statements can be considered an additional form of supervision, which the state should carry out.	a. It does not maintain the accumulated knowledge of the auditing firm carrying out the work. The focus of the new auditor's work may not be on risk areas; b. It destabilizes the economic relationship between the parties. In the first year of work, firms make a considerable investment in the expectation that it will be recouped in subsequent years by more efficient and better-planned work; c. There is a reduction in investments in auditor specialization, as firms would not allocate resources to technical training without the certainty that the relationship would be interrupted by normal circumstances and not by a regulatory decision; d. Corporate governance is affected, because freedom of choice would be impacted in its essence; e. It unbalances the firms' market because the search for the recomposition of client portfolios would be structured inappropriately, without respecting normal market conditions; f. A career in auditing would be hampered, as the loss of these clients could even lead to firms ceasing to audit.

Source: Oliveira e Santos (2007, p. 95).

However, it is important to note that independent audit rotation studies have different approaches. The research by Dopuch, King, and Schwartz (2001), which compares mandatory rotation regimes with optional rotation regimes, found evidence that those that require rotation reduce the auditor's willingness to issue opinions with a favorable bias. In contrast to this 2001 study, Johnson, Khurana, and Reynolds (2002) showed that the quality of results drops when auditors have been auditing a company for less than 3 years. Myers, Myers, and Omer (2003) found evidence that voluntary turnover produces more opinions with a favorable bias than mandatory turnover.

This is no different in Brazil, since Azevedo and Da Costa (2012) showed that changing the audit firm does not impact earnings management. On the other hand, Silvestre, Costa, and Kronbauer (2018) found evidence that auditor rotation reduces the volume of discretionary accruals and improves earnings quality. These findings show that research has not yet stabilized in terms of results and indicate that more studies involving other variables should be carried out to identify this relationship accurately.

2.3 Earnings management

Earnings management is a tool that interests all company stakeholders and explains the constant evolution of accounting research in recent years. Bispo and Lamounier (2011) point out that investors and other capital market participants are interested in determining how much companies' results are manipulated, since these findings are decisive in making a series of decisions, including whether to buy or sell shares.

Schipper (1989) conceptualizes earnings management as an intentional intervention in the financial reporting process to obtain some private gain. For Healy and Wahlen (1999), earnings management occurs when managers use their judgment to modify the understanding of some of the company's stakeholders in its economic performance or to influence contractual results that depend on accounting figures.

In this regard, it is important to emphasize that management practice does not constitute accounting fraud. In other words, the manager operates within the limits of what the legislation prescribes; however, where the rules give the manager discretion, he makes his choices not according to what reality dictates, but according to other incentives (Martinez, 2001). Therefore, earnings management is not always harmful to stakeholders, as when administrators use managerial discretion to signal their expectations of the company's future cash flows. In general, empirical research into earnings management focuses on discretionary accruals (Martinez, 2013).

Accruals arise from applying the accrual basis when there is a mismatch between the cash inflow or outflow and the accounting recognition of a transaction (Ronen & Yaari, 2008). In other words, there is no accrual when a transaction's accounting recognition occurs simultaneously as its cash inflow or outflow. Therefore, accruals do not occur on a cash basis and are a natural consequence of the accrual basis.

In this view, when management uses discretion to manage the accrual and, consequently, the result, it is called a discretionary accrual. An accrual that occurs naturally, without management interference, is called a non-discretionary accrual (Ronen & Yaari, 2008). In addition, accruals are estimates that are materially representative of results and can be legally manipulated within the framework of accounting principles (Ronen & Yaari, 2008). Thus, specific accruals offer a unique opportunity to detect earnings management.

Following these definitions, the purpose of the audit committee is to monitor the financial discretion of managers, as a way of guaranteeing the credibility of the financial statements, protecting the interests of shareholders, and improving the quality of the accounting information reported (Davidson, Goodwin-Stewart & Kent, 2005). In their study, the authors validate that this committee's efficiency is associated with its members' degree of independence. Thus, the audit committee's efficiency in supervising managers' activities to improve the quality of accounting information is associated with the degree of independence of its members (Sultana, Singh & Van Der Zahn, 2015).

Cunha, Hillesheim, Faveri, and Rodrigues (2014), in an analysis of 415 companies listed on BM&FBovespa in 2010 and 2011, found that the size of the audit committee and the independence of its members do not influence the level of discretionary accruals. According to DeAngelo (1981), choosing a larger auditing firm guarantees higher audit quality, since large companies have more resources and expertise to detect earnings management practices that reduce the quality of the information reported to external users.

2.4 Previous studies and formulation of hypotheses

Previous studies have been dedicated to identifying the level of earnings management in publicly traded companies after the replacement of the independent auditor and verifying the quality of audits during audit firm rotation. Figure 2 below shows the most recent international research.

Figure 2 - Previous studies

Author/Title	Method	Results
Lennox, CS, Wu, X., & Zhang, T. (2014). Does Mandatory Rotation of Audit Partners Improve Audit Quality?	Método Logístico Dados em Painel Testes multivariados Modelo de Regressão	The results suggest that the mandatory rotation of partners responsible for the work results in higher quality audits in the years immediately following the rotation. Specifically, a significantly higher frequency of audit adjustments was found during the last year of the outgoing partner's term before and during the first year of the incoming partner's term after the mandatory rotation.
Martani, D., Rahmah, NA, Fitriany, F., & Anggraita, V. (2021). Impact of audit tenure and audit rotation on the audit quality: Big 4 vs non big 4	Sampling method intentional Jones's model Kasnik's model	Audit firm rotation positively impacts audit quality, and the positive impact is lower in the Big 4. It was also observed that, in the Big 4, the rotation of audit partners is sufficient to improve audit quality because they have enough partners to carry out a quality review.

Panel Data	Method	Results
Ele, LJ e Chen, J. (2021). Does Mandatory Audit Partner Rotation Influence Auditor Selection Strategies?	Regression model Panel data	The results show that for audit partner rotations, compared to voluntarily rotated companies, a higher percentage of companies choose specialist auditors from the sector to be their successor audit partners under mandatory rotation.
Chen, L., Xiao, T., & Zhou, J. (2023). Do auditor changes affect the disclosure of critical audit matters? Evidence from China	Regression model Panel data	The study found that changes in the disclosure of CAMs - Critical Audit Matters - due to auditor changes positively affect audit quality, the quality of financial reports and the efficiency of stock market prices.
Cimini, R., Mechelli, A., & Sforza, V. (2022). Auditor independence and value relevance in the European banking sector: do the investor protection environment and corporate governance matter?	Regression model Panel data	The findings show that, in different investor protection environments or in the presence of differences in the quality of corporate governance, phenomena that could be interpreted as a deterioration in auditor independence do not necessarily determine a decrease in value relevance of the accounting figures.

Based on this evidence and the proposed research problem, namely “how is earnings management in companies in the agricultural sector affected by the rotation of independent auditors?”, hypothesis 1 was chosen:

H_1: The replacement of the independent auditor influences the level of earnings management in companies in the agricultural sector.

The research will also investigate whether voluntary rotation and mandatory rotation are different from each other when analyzing earnings management data. The following hypothesis is proposed:

H_2: The type of rotation (mandatory or voluntary) influences the level of earnings management in companies in the agricultural sector.

Another proposal of the research was to investigate whether there are differences between companies considered to be Big-Four or not in terms of earnings management:

H_3: The replacement of the independent auditor by/for a Big-Four firm influences earnings management in companies in the agricultural sector.

3. RESEARCH METHODOLOGY

3.1 Sample and data source

The sample for this study consists of all the companies classified in the agricultural sector that traded their securities on B3 between 2012 and 2022. This choice was made exclusively to capture only the agricultural sector and the information period available for the study. The companies were selected by collecting information from the basic database of the Brazilian Securities and Exchange Commission and the Economática® software, totaling 25 companies. The Pae (2005) model was used to estimate accruals, which are understood as a proxy for earnings management.

In addition, the information regarding the replacement of the independent auditor is listed in the Reference Form, which publicly traded companies must submit to the CVM every year. Section 2 of the form presents the identification and remuneration of the independent auditors. This section collects all the data necessary to classify the rotation as voluntary or mandatory and the rotation date. We also checked whether the company is a Big Four and whether a Big Four company has replaced the auditor.

Table 1 below shows the information on the audits collected from the reference form, with 227 observations over the eleven years analyzed.

The companies 3tentos, Ctc S.A, BRF S.A and Marfrig, only have one rotation in the period, which is because the companies hired the audit firms in 2012 and remained until 2017 when they made the first rotation and remained for six years, exceeding the 5 (five) year period established by legislation, until they made the second change in 2023 (period not analyzed).

Table 1 - Frequency distribution of audit rotations

Company	Sector	No. of observations	Rotating
3tentos	Agriculture and Fishing	5	1
Agribrasil	Agriculture and Fishing	5	-
Agrogalaxy	Agriculture and Fishing	5	-
Boa Safra	Agriculture and Fishing	6	-
Brasilagro	Agriculture and Fishing	11	4
Ctc S.A.	Agriculture and Fishing	6	1
Pomifruit	Agriculture and Fishing	11	2
Raizen	Agriculture and Fishing	2	-
SLC Agrícola	Agriculture and Fishing	11	2
Vittia	Agriculture and Fishing	6	-
		68	**10**
Ambev S/A	Food and drink	11	2
BRF SA	Food and drink	11	1
Camil	Food and drink	5	-
Excelsior	Food and drink	11	2
JBS	Food and drink	11	2
Josapar	Food and drink	11	2
M Dias Branco	Food and drink	11	3
Marfrig	Food and drink	11	1
Minerva	Food and drink	11	2
Minupar	Food and drink	11	2
Oderich	Food and drink	11	2
		115	**19**
Irani	Pulp and Paper	11	2
Klabin S/A	Pulp and Paper	11	2
Melhor SP	Pulp and Paper	11	5
Suzano S/A	Pulp and Paper	11	1
		44	**10**
Total		**227**	**39**

By delimiting the sample to the years between 2012 and 2022 as the period of analysis, this research recognizes that, as a result of the mandatory rotation in 2012, Brazil has adopted the hypothesis of two types of external auditor replacement: voluntary and mandatory. In this way, all the rotations were broken down into mandatory and voluntary, year of attendance, whether or not the company replaced in the rotation was one of the companies considered to be Big-Four and whether or not the new audit company, following the rotation, was one of the companies considered to be Big-Four (Table 2).

Table 2 - Frequency distribution of audit rotations

Total casters	39	100%
Voluntary castors	11	28%
Compulsory castors	28	72%
Big-Four to non-Big-Four	2	5%
Non-Big-Four to Big-Four	2	5%
Big-Four to Big-Four	17	44%
Non-Big-Four for Non-Big-Four	18	46%
Castors 2012-2013	5	13%
Castors 2013-2014	-	-
Castors 2014-2015	3	8%
Castors 2015-2016	2	5%
Castors 2016-2017	9	23%
Castors 2017-2018	5	13%
Castors 2018-2019	2	5%
Castors 2019-2020	2	5%
Castors 2020-2021	3	8%
Castors 2021-2022	8	21%

Table 2 shows that 72% of the sample's audit rotations were mandatory. In 44% of the rotations that took place, the replaced company and the replacement company were Big Four. The end of 2016 and the end of 2021 were the years that saw the most casters, 23% and 21%, respectively. All the information related to the replacement of the independent auditor was collected directly from the Reference Forms published on the companies' investor relations portals or the CVM website.

3.2 Model

A proxy for earnings management frequently used in research on the subject has been the so-called accruals. Colauto and Beuren (2006, p. 10) mention that accruals "represent the elements of the result which, although under the cash basis, have already been effected, are not yet attributed within the calculation period or under the accrual basis". That said, it should be emphasized that accruals are not a problem in themselves, as the reality of the company's business may require the application of accruals.

For the analysis of this research, Pae's (2005) accruals model was used to measure earnings management. Pae (2005) proposed an improvement to the Jones (1991) and modified Jones (1995) models, both of which are widely used in academic research to estimate accruals. The choice of the Pae (2005) model is justified by the fact that this model aims to increase the predictive power of the Jones (1991) and modified Jones (1995) models, which is possible by including variables that represent operating cash flow and the natural reversal of previous accruals (Paulo, 2007; Baptista, 2008).

According to Pae (2005), total accruals are calculated using equation 1.

$$TA_{it} = a\left(\frac{1}{A_{it-1}}\right) + \beta_1(\Delta R_{it}) + \beta_2(PPE_{it}) + \lambda_1(FCO_{it}) + \lambda_2(FCO_{it-1}) + \lambda_3(TA_{it-1}) + \varepsilon_{it} \quad (1)$$

in which:
TA_{it} = total accruals of company i in period t;
A_{it-1}= total assets of company i at the end of period t-1;
ΔR_{it} = change in net revenues of company i from period t-1 to period t;
PPE_{it} = balances of the Fixed Assets accounts of company i at the end of period t;
FCO_{it} = operating cash flow of company i in period t;
FCO_{it-1} = operating cash flow of company i in period t-1;
ε_{it} = regression errors, taken as discretionary accruals.

As Azevedo and Costa (2012) point out, the further away from zero the accruals result, the greater the level of earnings management. This study used a panel data model and Stata software for statistical procedures.

The t-test was used to compare means in the Stata software to analyze whether the observed means were statistically significant for testing the study's hypotheses. The average accruals were observed before and after the independent audit rotation for each hypothesis. Martinez (2008, p. 8) points out that discretionary accruals have "the sole purpose of managing the accounting result". Baptista (2008) and Silva and Lucena (2017) mention that total accruals also contain important information regarding the level of earnings management; therefore, for the analysis of the results, the averages of total accruals and discretionary accruals were observed for each event analyzed.

4. ANALYSIS AND DISCUSSION OF RESULTS

Initially, the panel data model with fixed effects and robust standard errors was applied because, according to Gujarati (2006), it tends to provide more informative results, with greater variability and less collinearity between the variables, more degrees of freedom, and more efficiency. However, the panel data model with random effects was applied, and the correlation between the unobservable component and the regressors was assumed to be zero. The Hausman test was then carried out to confirm the use of random effects, and the null hypothesis was not rejected, i.e., the hypothesis that the random effects model is more appropriate than the fixed effects model. Therefore, the random effects model was used because it has more efficient estimators than the fixed effects model.

The analysis proposed in this article was to identify the level of explanation of the variables in Pae's (2005) accruals model in the perception of earnings management in companies in the agricultural sector. To this end, accruals were considered a sign of the practice of manipulating companies' earnings.

Table 3 shows the descriptive statistics of the observations of the variables for the application of the Pae (2005) model, considering the estimation of total accruals, and there was no exclusion of outliers. The AT(Total Accruals) variable had a high average value (11.20), different from the values found by the research carried out by Silva and Lucena (2017) and Parreira, Nascimento, Puppin and Murcia (2020), to identify the perception of earnings management in companies with an initial public offering of shares. Furthermore, its maximum value (15.38) was much higher than its average. Thus, according to Baptista (2008), it can be inferred that, in some periods, even higher accruals were identified, which may indicate the occurrence of higher incidences of earnings management in some years.

Table 3 - Descriptive statistics of the observations

Variable	Average	Standard deviation	Minimum	Maximum
Total Accruals	11.20	2.04	3.83	15.38
1/ Total assets	0.00	0.00	0.00	0.00
ΔR	13.09	2.46	7.28	18.20
PPE	13.67	2.59	5.12	18.07
FCO	12.54	2.60	5.91	16.98
FCO (t-1)	12.52	2.56	5.91	16.98
Total Accruals (t-1)	11.12	2.03	3.83	15.38

As explained in this research's methodology, Accruals were obtained through regression using Stata software. The results are shown in Table 4. The coefficient of determination of the regression analyzed (R^2—adjusted) was 97% for Within, 40.30% for Between, and 37.08% for overall.

Table 4 - Regression results using the panel data model

	Prob > chi2	0.000		
	corr (u_i, X)	0.000		
	Within =	0.9700		
Adjusted R^2	Between =	0.4030		
	Overall =	0.3708		

Variable	Coefficient	Standard error	T-reason	P-value
1/ Total assets	147247.3	284885.9	0.520	0.605
ΔR	-0.11782	0.20093	-0.590	0.558
PPE	-0.34761	0.48805	-0.710	0.476
FCO	-0.64241	0.23911	-2.690	0.007
FCO (t-1)	0.79818	0.15275	5.230	0.000

The results presented in Table 4 show that, for the significance test, the p-value of two variables, namely the operating cash flow for period t and the operating cash flow for period t-1, was statistically significant at 1%. This result contributes to reaffirming the study by Li and Zaiats (2017), which identified the practice of earnings management through cash flows.

Regarding the results of the coefficients, the expected sign for the variation in revenue (DR) is not very precisely defined, since a variation in revenue can cause both positive variations in profit, through an increase in accounts receivable, and negative variations, through an increase in accounts payable. As for the coefficient of the PPE variable, it was confirmed as negative, as it is part of the group of profit reducers (depreciation and amortization). Moreover, the coefficients of the FCO and FCO (t-1) variables are expected to show positive signs, as accruals are used to offset the transitory effects of cash flow (Ball & Shivakumar, 2006).

The variables in the model show positive and negative relationships with the dependent variable, discretionary accruals , with emphasis on FCO (Operating Cash Flow in period t). For FCO, the applicable analysis is that a change of 1 unit in discretionary accruals causes a negative change of approximately 0.64 units in the company's operating cash flows.

In order to analyze whether there is a statistically significant difference in the level of earnings management between the group of companies that changed audit firms and those that did not change audit firms, we applied the student's t-test, which is shown in Table 5.

Table 5 - Earnings management mean test

Companies	Average Accruals	Standard deviation	P-value
With exchange	9.68	1.23	0.0187
No exchange	11.35	0.22	

The average number of accruals in companies in which there was an audit change was (9.68), and the average of those without a change was (11.35) at a significance level of 98%. This confirmed the hypothesis tested : The replacement of the independent auditor influences the level of earnings management in companies in the agricultural sector. By testing this hypothesis, it was possible to answer the problem proposed by the research, namely whether "the earnings management of companies in the agricultural sector is affected by the rotation of independent auditors", contradicting the findings of the authors Azevedo and Costa (2012), who found evidence that changing the audit firm does not impact the level of earnings management. In addition, the authors mention that, once the companies' accruals have been obtained , the further away from zero, the greater the level of earnings management.

In order to further investigate whether voluntary rotation and mandatory rotation are different from each other when analyzing earnings management data, we propose : The type of rotation (mandatory or voluntary) influences the level of earnings management in companies in the agricultural sector. The result showed that when the exchange is voluntary, earnings management is (2.09) higher than when it is mandatory.

Table 6 - Earnings management test - Voluntary or compulsory exchange

Companies	*Average Accruals*	Standard deviation	P-value
Compulsory	9.27	1.37	0.0073
Volunteer	11.36	0.22	

The last proposal of the research was to investigate whether there are differences between companies considered to be Big-Four or not in terms of earnings management: : The replacement of the independent auditor by/for a Big-Four firm influences the level of earnings management in companies in the agricultural sector.

Table 7 shows that the Big-Four/Non-Big-Four and Non-Big-Four/Big-Four exchanges did not have a sufficient sample to calculate the significance of the study, which is less common in the agricultural sector. However, it can be seen that companies that switch from non-Big-Four to non-Big-Four have lower earnings management compared to others in the sector.

Table 7 - Earnings management test - Big-Four/Big-Four

Companies	Average Accruals	P-value
Big-Four/ Big-Four	10.95	0.4315
Big-Four/ Non-Big-Four	11.77	*
Non-Big-Four/ Big-Four	12.14	*
Non-Big-Four/ Non-Big-Four	7.31	0.0003

Furthermore, it can be said that the type of audit firm (Big-Four and Non-Big-Four) does not have the same impact on earnings management. In this sense, the evidence corroborates the findings of Becker, DeFond, Jiambalvo and Subramanyam (1998), Silva and Bezerra (2010), Martinez and Reis (2010) and Azevedo and Costa (2012).

5. CONCLUSIONS

The aim of this study was to identify, by means of statistical analysis using the accruals Pae's (2005) model, whether the rotation of independent auditors has any effect on the level of earnings management of Brazilian agricultural companies listed on B3 between 2012 and 2022. The literature reviewed advocates that changing the audit firm contributes to increasing the independence of the audit firm in relation to the audited company, in addition to serving as an instrument for reducing earnings management, since the new auditor can be more skeptical about the financial statements, thus increasing the quality of the financial statements (Cunha, Leite & Morais, 2019).

The study aimed to analyze how audit rotation influences the earnings management of companies in the Brazilian agricultural sector. The results showed that the variables relating to operating cash flow in the following year and in the year prior to the rotation had an impact on the earnings management of companies in the sector in the period analyzed. Similarly, when analyzing accruals, it can be seen that the high average value indicates the occurrence of higher incidences of earnings management practices in certain years.

With regard to the hypothesis , namely that the type of rotation (mandatory or voluntary) influences the level of earnings management in companies in the agricultural sector, the research showed that when there was a voluntary exchange, the companies showed greater management compared to those that did not or those with a mandatory exchange. As for the Big-Four/Non-Big-Four and Non-Big-Four/Big-Four exchanges, the study did not obtain a sufficient sample to calculate the significance of the relationship, showing that this is less common in the agricultural sector. Even so, it can be seen that the switches from non-Big-Four to non-Big-Four have lower earnings management compared to the others.

Therefore, this research has contributed to a better understanding of how earnings management behaves when there is audit rotation in companies in the Brazilian agricultural sector. As future studies, we suggest carrying out an individual analysis of the companies in the sector, since significant relationships were found. However, in order to validate the influence of Big-Four companies, it may be necessary to carry out an in-depth examination, such as a case study, which could undertake an analysis with a broader perspective and with internal documents that facilitate the relationship between the variables studied.

In addition, the agricultural sector has peculiarities that directly affect companies' financial results. This characteristic can generate greater uncertainty and pressure to smooth or manage results, especially in adverse periods. These conditions make the role of auditing more challenging, requiring rigor and skepticism. It may therefore be worth studying this impact in a future study.

REFERENCES

Aguiar, A. B., Corrar, L. J., & Batistella, F. D. (2004). Adoção de práticas de governança corporativa e o comportamento das ações na Bovespa: evidências empíricas. Revista de Administração da Universidade de São Paulo, 39(4).

Azevedo, F. B. & Da Costa, F. M. (2012). Efeito da troca da firma de auditoria no gerenciamento de resultados das companhias abertas brasileiras. Revista de Administração Mackenzie.

Ball, R. & Shibakumar, L. (2006). The role of accruals in asymmetrically timely gain and loss recognition. Journal of Accounting Research.

Bispo, O. D. A., & Lamounier, W. M. (2011). Gerenciamento de resultados contábeis e o desempenho das ofertas públicas subsequentes de ações de empresas brasileiras. Dissertação de mestrado. UFMG

Bortolon, P. M., Neto, A. S., & Santos, T. B. (2013). Custos de Auditoria e Governança Corporativa*/Audit Costs and Corporate Governance. Revista Contabilidade & Finanças, 24(61), 27.

Chagas, J. F., Del Trabajo, T., & Pymes, M. (2007). Governança corporativa: aplicabilidade do conceito, dos princípios e indicadores à gestão de pequenas e médias organizações.

Consoni, S., Colauto, R. D., & de Lima, G. A. S. F. (2017). A divulgação voluntária e o gerenciamento de resultados contábeis: evidências no mercado de capitais brasileiro. Revista Contabilidade & Finanças-USP.

Dechow, P., Ge, W. & Schrand, C. (2010). Understanding earnings quality: a review of proxies, their determinants and their consequences. Journal of Accounting and Economics.

Dopuch, N., King, R. R. & Schwartz, R. (2001). An Experimental Investigation of Retention and Rotation Requirements. Journal of Accounting Research.

El Diri, M. (2018). Introduction to Earnings Management. Springer International Publishing, eBOOK, ISBN 978-3-319-62685-7.

Embrapa. (2021). O Agro no Brasil e no Mundo: Uma síntese do Período de 2000 a 2020. *https://www.embrapa.br/documents/10180/62618376/O+AGRO+NO+BRASIL+E+NO+MUNDO.pdf/41e20155-5cd9-f4ad-7119-945e147396cb*

Formigoni, H., Pompa, A. M. T., Soares, L. R., & Paulo, E. (2008). A contribuição do rodízio de auditoria para a independência e qualidade dos serviços prestados: um estudo exploratório baseado na percepção de gestores de companhias abertas brasileiras. Contabilidade Vista & Revista, 19(3).

Haussmann, D. C. S., Savariz, C. R., Bizatto, L. S., & Klann, R. C. (2017, August). Gerenciamento de Resultados em Empresas de Construção Civil Envolvidas na Operação Lava Jato. In VIII Congresso Nacional de Administração e Contabilidade-AdCont 2017.

Healy, P. M. & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and Its Accounting Horizons.

Hendriksen, E. S., & Van Breda, M. F. (1992). Accounting Theory, Homewood, IL: Irwin.

Johnson, V. E., Khurana, I. K. & Reynolds, J. K. (2002). Audit-Firm Tenure and the Quality of Financial Reports. Contemporary Accounting Research.

Instituto Brasileiro de Governança Corporativa. IBGC. (2015). Código das melhores práticas de governança corporativa. (5 ed.). São Paulo: IBGC.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3 (4), p. 305–3606.

Keune, M. B. & Johnstone. K. M. (2012). Julgamentos de materialidade e a resolução de distorções detectadas: O papel dos gerentes, auditores e comitês de auditoria. The Accounting Review 87 (5): 1641–1677.

Kreter, A. C., Ferreira, D., Servo, F., Soria, G., Filho, B., Ronaldo, J., & Souza, C. (2023). *CARTA DE CONJUNTURA*. https://www.conab.gov.br/info-agro/safras/graos/boletim-da-safra-de-graos.

Li, T. & Zaiats, N. (2017). Information environment and earnings management of dual class firms around the world. Journal of Banking & Finance.

Martinez, A. L. (2001). Gerenciamento dos resultados contábeis: estudo empírico das companhias abertas brasileiras. Tese (Doutorado em Ciências Contábeis. Universidade de São Paulo.

Martinez, A. L. (2013). Gerenciamento de resultados no Brasil: um survey da literatura. Brazilian Business Review, Brasília.

Martinez, A. L. & Reis, G. M. R. (2010) Audit firm rotation and earnings management in Brazil. Revista de Contabilidade e Organizações.

Martins, V. G., Oliveira, A. D., Niyama, J. K., & Diniz, J. A. (2014). Níveis diferenciados de governança corporativa e a qualidade da informação contábil durante o processo de convergência às normas internacionais de contabilidade. Contexto, 14(27), 23-42.

McGahan, A. M. (2021). Integrating insights from the resource-based view of the firm into the new stakeholder theory. Journal of Management, 0149206320987282.

Milgrom, P., Roberts, J. (1992). Economics, Organizational & Management. New Jersey: Prentice-Hall.

Myers, J. N., Myers, L. A. & Omer, T. C. (2003). Exploring the Term of the Auditor-Client Relationship and the Quality of Earnings: A Case for Mandatory Auditor Rotation? The Accounting Review.

Oliveira, A. Q., & Santos, N. M. B. F. (2007). Rodízio de firmas de auditoria: a experiência brasileira e as conclusões do mercado. Revista Contabilidade & Finanças-USP, 18(45).

Pae, J. (2005). Expected accrual models: the impact of operating cash flows and reversals of accruals. Review of Quantitative Finance and Accounting, 24(1), 5-22.

Parreira, M. T. S., Nascimento, E. M., Puppin, L. &Murcia, F. D. R. (2020). Rodízio de auditoria independente e gerenciamento de resultados: uma investigação entre empresas de capital aberto no Brasil. *Enfoque: Reflexão Contábil*. 40, 1 (nov. 2020), 67-86. DOI:https://doi.org/10.4025/enfoque.v40i1.44318.

Paulo, E. (2007). Manipulação das informações contábeis: uma análise teórica e empírica sobre os modelos operacionais de detecção de gerenciamento de resultados (Doctoral dissertation, Universidade de São Paulo).

Pereira, A. N., & Vilaschi, A. (2006). Governança Corporativa e Contabilidade: explorando noções e conexões. Anais do Simpósio FUCAPE de Produção Científica, Espírito Santo, Vitória, Brasil, 4, 102-117.

Quevedo, M. C. & Pinto, L. J. S. (2014). Percepção do Rodízio de Auditoria sob o olhar dos Auditores Independentes. Revista Catarinense da Ciência Contábil.

Ronen, J. & Yaari, V. (2008). Earnings management: Emerging Insights in Theory, Practice, and Research.

Schipper, K. (1989). Commentary on Earnings management. Accounting horizons, 3(4), 91-102.

Silvestre, A. O., Costa, C. M. & Kronbauer, C. A. (2018). Rodízio de Auditoria e a Qualidade dos Lucros: Uma Análise a Partir dos Accruals Discricionários. Brazilian Business Review.

Sprenger, K. B., Silvestre, A. O., & Laureano, R. V. (2016). Relatório de Auditoria Independente Modificado e o Rodízio de Firma de Auditoria. In XVI Congresso USP de Controladoria e Contabilidade, São Paulo. Anais do Congresso USP de Controladoria e Contabilidade.

RMC

The Journal of Accounting of Minas Gerais is an Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais - ISSN: 2446-9114
Journal of Accounting of Minas Gerais, Volume 26, Number 1, Article 7, Pages 92 - 105, january/april 2025. Available at: https://revista.crcmg.org.br/rmc
DOI: https://doi.org/10.51320/rmc.v26i1.1637

CRCMG CONSELHO REGIONAL DE CONTABILIDADE DE MINAS GERAIS

CEO NARCISSISM AND REAL ACTIVITY MANAGEMENT

NARCISISMO DO CEO E GERENCIAMENTO POR ATIVIDADES REAIS

This article was accepted and presented at the XVII Congresso ANPCONT, held from November 29 to December 1, 2023, in São Paulo, Brazil.

ABSTRACT

This study aims to examine the influence of narcissistic Chief Executive Officers (CEOs) on real earnings management. The analysis is based on a sample of 111 companies, comprising 543 firm-year observations of publicly traded firms listed on B3 (the Brazilian Stock Exchange). CEO narcissism was measured using a linguistic approach, calculating the proportion of first-person singular possessive and personal pronouns relative to the total use of first-person pronouns in CEOs' speech during earnings conference calls. Earnings management was evaluated using the three models proposed by Roychowdhury (2006), which detect manipulation through operational cash flow, production costs, and discretionary expenditures. To test the proposed hypotheses, panel data modeling was employed using Generalized Least Squares (GLS), with corrections for heteroscedasticity and autocorrelation. The findings indicate that CEOs exhibiting higher levels of narcissism, particularly when serving on the board of directors, are more likely to engage in earnings management through operational cash flow and discretionary expenses. The results also suggest a substitutive relationship between accrual-based earnings management and real activities manipulation. Moreover, during periods of economic recession, the level of earnings management tends to decline in terms of operational cash flow manipulation, but increases in the manipulation of discretionary expenditures. These findings contribute to corporate governance literature by emphasizing the importance of implementing monitoring mechanisms and adopting more rigorous hiring practices to mitigate potential unethical behavior associated with executive narcissism.

Keywords: Narcissism; Chief Executive Officer; Real activity earnings management

RESUMO

O trabalho tem como objetivo examinar a influência dos CEOs narcisistas no gerenciamento de resultados real. Este estudo preenche a lacuna na literatura ao verificar a interação entre o narcisismo do CEO e a moderação do conselho de administração no gerenciamento de resultados reais. Com uma amostra de 111 empresas listadas na B3, o narcisismo é medido pela proporção de pronomes possessivos e pessoais da primeira pessoa do singular em relação ao total de pronomes da primeira pessoa nas falas dos CEOs durante as teleconferências. O gerenciamento de resultados é avaliado com base nos três modelos de Roychowdhury (2006).Para testar as hipóteses foi utilizado a modelagem em painel Mínimos Quadrados Generalizados (GLS) com correção de heterocedasticidade e autocorrelação. Os resultados evidenciam que CEOs com alto nível de narcisismo, quando participam do conselho de administração, tendem a realizar o gerenciamento de resultados por meio do fluxo de caixa e de despesas discricionárias. Também foi encontrado que o gerenciamento por accruals é considerado um substituto para o gerenciamento real. Ademais, observou-se que, em períodos de recessão econômica, os níveis de gerenciamento de resultados se tornam menores para as manipulações pelo padrão de fluxo de caixa operacional e maiores para as despesas discricionárias. Este estudo auxilia as companhias a terem maior cautela na contratação e na implementação de mecanismos de governança que mitiguem possíveis atitudes antiéticas.

Palavras-chave: Narcisismo; Chief Executive Officer; Gerenciamento de resultado por atividades reais

Niara Gonçalves da Cruz
Doutorado em Controladoria e Contabilidade pela Universidade Federal de Minas Gerais (UFMG). Mestrado em Ciências Contábeis pela mesma universidade (UFMG). Bacharel em Ciências Contábeis pela Universidade Federal de Minas Gerais (UFMG). Docente da Universidade Federal do Maranhão (UFMA). niaragc@hotmail.com https://orcid.org/0000-0003-1559-1686

Renata Turola Takamatsu
Doutorado em Controladoria e Contabilidade pela Universidade de São Paulo (USP). Mestrado em Controladoria e Contabilidade pela Universidade de São Paulo (USP). Bacharel em Ciências Contábeis pela Universidade Federal de Minas Gerais (UFMG). Docente da Universidade Federal de Minas Gerais (UFMG) rettakamatsu@gmail.com https://orcid.org/0000-0003-4423-9024

Fernanda Alves Cordeiro
Doutorado em Controladoria e Contabilidade pela Universidade Federal de Minas Gerais (UFMG). Mestrado em Ciências Contábeis pela mesma universidade (UFMG). Bacharel em Estatística pela Universidade Federal de Minas Gerais (UFMG). fernandaest@yahoo.com.br https://orcid.org/0000-0003-4206-9447

Journal of Accounting of Minas Gerais - ISSN 2446-9114 – Open Access quarterly journal, published by Conselho Regional de Contabilidade de Minas Gerais (CRCMG). Received: 12 June 2024. Proofread: 29 September 2024. New alterations: 31 October 2024. Accepted: 07 December 2024, by Dr. Ewerton Alex Avelar and Dr. Nálbia de Araújo Santos. Published: 16 May 2025. Published by: CRCMG

1. INTRODUCTION

Real earnings management refers to managerial decisions that deviate from normal business practices, with the primary objective of achieving certain financial reporting targets (Roychowdhury, 2006). According to Graham, Harvey, and Rajgopal (2005), managers often prefer real earnings management because it is less likely to be detected by auditors or regulatory authorities, given that such practices can be rationalized as strategic business decisions rather than accounting manipulation.

However, real earnings management can have serious long-term consequences. Actions taken in a given period to inflate profits may negatively affect future cash flows and operational efficiency (Roychowdhury, 2006). Unlike accrual-based manipulation—which primarily affects the informational quality of financial reports—real earnings management has substantive implications, potentially eroding firm value over time.

Given these risks, real earnings management is often associated with decision-makers who prioritize personal interests over the long-term welfare of the firm and its stakeholders. Capalbo et al. (2018) argue that such behavior is characteristic of narcissistic individuals, who may be willing to engage in ethically questionable conduct to bolster their personal image and attract attention.

Narcissism is a multidimensional personality trait characterized by an inflated sense of entitlement, a dominant role in decision-making processes, hypersensitivity to criticism, lack of empathy, and a chronic need for admiration and validation. Narcissistic individuals often perceive themselves as exempt from social norms and regulatory standards, making them more prone to violate rules to serve self-interest (Rhodewalt & Morf, 1995).

To protect their self-image and fulfill their need for external affirmation, narcissistic Chief Executive Officers (CEOs) may be more inclined to engage in unethical behaviors, including earnings manipulation. Understanding how narcissism at the executive level influences corporate behavior is thus critical for anticipating risks to firm performance and reputation.

Nuanpradit (2019) emphasizes the importance of a board structure that prevents managers from privileging short-term financial gains over long-term sustainability and competitiveness. In line with this view, Daily and Dalton (1997) highlight that when CEOs also serve on the board of directors, their discretionary power increases while monitoring effectiveness decreases, potentially enabling opportunistic behavior.

The literature on this subject remains relatively nascent, with empirical investigations primarily focused on firms operating in the United States, Indonesia, and Taiwan (Olsen et al., 2014; Jasman & Murwaningsari, 2018; Phillips, 2019). However, organizational behavior is influenced by cultural and institutional contexts, and findings from one country may not be directly generalizable to another. The Brazilian market, characterized by its unique sociocultural attributes, may influence how narcissistic CEOs engage in real earnings management (Freitas et al., 2020).

Moreover, the literature reveals a gap concerning the interaction between CEO narcissism and governance structures—particularly the moderating role of board membership—in facilitating or constraining real earnings management. Accordingly, this study seeks to contribute to the literature by examining how narcissistic CEOs behave with respect to real earnings management in the Brazilian capital market.

Organizational decision-making typically resides with a limited number of individuals occupying the highest hierarchical levels. The Chief Executive Officer (CEO), positioned at the apex of this structure, holds responsibility for strategic formulation, implementation, and oversight, as well as for the preparation and disclosure of financial statements (Combs, Ketchen, Perryman, & Donahue, 2007). In this context, Hambrick and Mason (1984) developed the Upper Echelons Theory (UET) to explain how executives' personal characteristics influence organizational outcomes. The theory posits that managerial decisions are partially shaped by the psychological and demographic attributes of top executives (Chatterjee & Hambrick, 2007; Hambrick & Mason, 1984).

Against this theoretical backdrop, the present study aims to investigate the influence of CEO narcissism on real earnings management within Brazilian publicly traded firms. The sample comprises 111 companies listed on B3, observed over the period 2010–2019. CEO narcissism is proxied following the methodology of Chatterjee and Hambrick (2007), which operationalizes narcissism through the proportion of first-person singular pronouns used during quarterly earnings conference calls. Real earnings management is captured using three proxies based on the model proposed by Roychowdhury (2006): abnormal operational cash flow, discretionary expenses, and production costs. The relationship between variables is analyzed using a panel data approach through Generalized Least Squares (GLS), with adjustments for heteroscedasticity and autocorrelation.

The main findings indicate that narcissistic CEOs, when they also hold a position on the board of directors, are more likely to engage in real earnings management, particularly through operational cash flow and discretionary expenditures. However, CEO narcissism alone—without board participation—does not significantly influence the adoption of such practices.

2. LITERATURE REVIEW

The Upper Echelons Theory (UET), introduced by Hambrick and Mason (1984), posits that organizational outcomes are, to a considerable extent, a reflection of the personal characteristics of top executives. The theory is grounded in the assumption of bounded rationality and comprises two central ideas: (i) executives interpret strategic situations subjectively, and (ii) these interpretations are shaped by their values, experiences, and personality traits (Hambrick, 2007). Consequently, a firm's strategic behavior tends to reflect the individual characteristics of its CEO (Wang et al., 2015). In this regard, recent literature highlights CEO narcissism as a relevant factor explaining managerial decision-making (Cruz et al., 2024).

Amernic and Craig (2010) conceptualize subclinical narcissism as a personality trait that exists on a continuum and may be present in all individuals to varying degrees. It is marked by a profound disconnect from empathic relationships, such that the narcissistic individual struggles to differentiate the self from others, perceiving the external world as an extension of their own identity.

According to Amernic and Craig (2010), narcissistic individuals set unrealistic goals due to their need for continuous self-affirmation. This desire for recognition and admiration may drive them to engage in unethical behaviors in pursuit of those goals. In this context, regularly published financial statements serve as a strategic tool for narcissistic CEOs to secure external validation and acclaim (Chatterjee & Hambrick, 2007).

Roychowdhury (2006) identifies three abnormal activities through which managers manipulate real operations to manage earnings: (i) abnormal cash flows from operations, (ii) reductions in discretionary expenditures (such as research and development, advertising, and selling, general and administrative expenses), and (iii) excessive increases in production costs.

Abnormal cash flows are typically linked to sales manipulation, whereby managers offer excessive price discounts or ease credit terms to inflate sales figures in the current period (Olsen et al., 2014). While such actions may temporarily boost earnings, they can have adverse consequences in future periods. Once pricing policies return to normal, sales volumes often decline, creating a mismatch in operating results over time (Lin et al., 2020).

Kothari et al. (2015) argue that when firms are unable to report satisfactory financial outcomes, managers may reduce discretionary expenditures to improve short-term earnings. Graham et al. (2005) similarly note that such practices reflect a preference for current-period profit at the expense of long-term competitiveness.

The third mechanism, abnormal production, involves overproduction to reduce per-unit costs, thereby increasing gross margins in the short run (Lin et al., 2020). However, overproduction leads to excess inventory, increases inventory holding costs, and intensifies demands on working capital (Olsen et al., 2014). Roychowdhury (2006) asserts that such a strategy is pursued only when the cost savings from reduced unit costs exceed the additional costs of retaining inventory.

Although these activities may occur within the scope of regular operations, their use beyond normal levels, with the explicit intention of meeting financial targets, constitutes real earnings management (Roychowdhury, 2006).

Table 1 provides a summary of prior studies on real earnings management and CEO narcissism, highlighting sample characteristics and key empirical findings.

Table 1 - Summary of Studies on CEO Narcissism and Real Earnings Management

Author	Sample	Results
Olsen *et al.* (2014)	The sample comprises the largest publicly traded companies in the United States, as listed in the 2010 Fortune 500, totaling 1,118 firm-year observations from 1992 to 2009.	The authors found a statistically significant relationship between abnormal cash flow from operations and abnormal production, and a statistically non-significant relationship with abnormal discretionary expenses. The study found no evidence that CEO narcissism is related to earnings management through accruals.
Jasman and Murwaningsari (2018)	manufacturing firms listed on the Indonesian Stock Exchange between 2013 and 2015, totaling 348 firm-year observations.	Narcissistic CEOs were shown to have a positive and significant effect on real earnings management in relation to operating cash flow and discretionary expenses. In contrast, for the overproduction pattern, the relationship was negative and statistically significant. Regarding the role of internal audit quality, the results suggest that it mitigates the influence of narcissistic CEOs on operating cash flow in the context of real earnings management.
Phillips (2019)	The sample, obtained from the Compustat database, comprises 4,725 firm-year observations spanning the period from 1995 to 2014.	The study finds a positive and significant relationship between CEO narcissism and real earnings management. It further reports that, during periods of economic crisis, the incidence of real activity manipulation is higher. These findings suggest that macroeconomic conditions can influence how narcissistic CEOs engage in earnings management practices.
Lin *et al*. (2020)	The sample consists of publicly traded electronics companies in Taiwan, covering the period from 2015 to 2017.	The most narcissistic CEOs tend to overstate earnings through abnormal production costs. However, the results indicate that more narcissistic CEOs are less likely to engage in earnings management through abnormal discretionary expenses.

Source: Prepared by the author.

The board of directors plays a crucial role in constraining executive discretion. Its primary responsibilities include hiring, evaluating, and compensating the CEO, as well as providing strategic oversight and consultation (Masulis, Wang, & Xie, 2012). In firms where board monitoring is effective, CEOs are expected to justify that their strategic decisions align with shareholders' interests (McNulty & Pettigrew, 1999). Under such governance, discretionary power is restricted, limiting the CEO's ability to pursue self-serving strategies without accountability (Finkelstein, 1992).

However, board oversight can be compromised when the CEO also holds a seat on the board. Nuanpradit (2019) argues that such duality weakens monitoring efficacy, as the CEO gains influence over decisions that directly affect their performance evaluation and remuneration. Additionally, other board members may be reluctant to critique the CEO's actions, particularly in hierarchical or collectivist cultures (Finkelstein & D'Aveni, 1994).

The Fraud Triangle Theory, developed by Cressey (1953), provides a conceptual framework for understanding the conditions under which unethical corporate behavior may arise. The theory identifies three enabling factors: (i) incentive or pressure, such as the need to meet financial targets or conceal poor performance; (ii) opportunity, often arising from weak or absent internal controls; and (iii) rationalization, where individuals justify unethical conduct as acceptable under the circumstances (Murphy, 2012).

Narcissistic executives, particularly those holding board positions, may fulfill all three conditions. They often experience strong incentives stemming from a desire for public admiration and aversion to criticism; they possess opportunities to influence or bypass board oversight; and they tend to exhibit a psychological sense of entitlement, which facilitates the rationalization of questionable behavior. While earnings management is not inherently fraudulent, it may be viewed as a precursor to fraud, as it creates an environment conducive to more serious legal and ethical violations.

3 METHODOLOGY

3.2 Description of the sample

This research is classified according to the objectives of the study and the data collection procedures. In terms of its objectives, the study is descriptive, as it aims to describe the characteristics of a specific population or phenomenon and to examine the relationships among the research variables (Cooper & Schindler, 2003). A longitudinal design is adopted to estimate the hypotheses based on data that vary over time and across firms, while a cross-sectional approach is used to calculate dependent variables derived from cross-sectional data.

From a methodological standpoint, the study adopts a quantitative approach, employing statistical models and econometric techniques to analyze the data (Richardson, 1999). This approach is appropriate for assessing the relationship between CEO narcissism and real earnings management. Therefore, this research is characterized as a descriptive and quantitative study, utilizing documentary data collection.

Regarding data collection procedures, this study qualifies as documentary research, as it relies on secondary data that had not previously undergone analytical treatment (Ferrari, 1982). The target population comprises publicly traded firms listed on B3 – the Brazilian Stock Exchange. The data collection period spans from 2010 to 2019, selected to coincide with the implementation of mandatory disclosure of the Reference Form (as per Instruction No. 480/2009 issued by the Securities and Exchange Commission of Brazil – CVM) and the availability of relevant data at the time of collection.

Initially, all publicly traded firms and their respective CEOs were identified, resulting in a total of 367 companies, based on data extracted from the Economática database on January 5, 2020. Firms in the financial sector were excluded due to the potential distortions caused by industry-specific regulatory frameworks (Capalbo et al., 2018). Furthermore, companies that had more than one CEO during the observation period were excluded to eliminate biases associated with CEO turnover. Specifically, any firm that underwent a CEO change—defined as having more than one CEO within a single year—was removed to allow for attribution of earnings management behavior to a single CEO's personality profile (Cruz et al., 2024).

Next, transcripts and audio recordings of earnings conference calls were collected for the selected companies. Meetings where the CEO was not present were excluded. Audio files without publicly available transcripts were manually transcribed. In total, 210 audio recordings, each averaging approximately 90 minutes, were transcribed. The analysis focused on quarterly earnings calls where CEOs presented company results to analysts and external stakeholders. When more than one call was conducted in a given year, transcripts were aggregated to create a single annual record for each firm-year between 2010 and 2019. Following the transcription process, financial data were extracted from the Economática database.

The final sample consisted of 111 companies and 543 firm-year observations. Panel data modeling was employed to analyze the relationship between CEO narcissism and real earnings management, in accordance with the study's objectives.

3.3 Operational definition of variables

3.3.1 Dependent Variables – Real Earnings Management

Following the framework developed by Roychowdhury (2006), this study considers three forms of real earnings management: (i) abnormal cash flow from operations (GRCFO), (ii) abnormal discretionary expenses (GRS&GA), and (iii) abnormal production costs (GRPROD). To estimate GRCFO, the following regression model was applied:

$$\frac{CFO_t}{A_{t-1}} = \beta_0 + \beta_1(\frac{1}{A_{t-1}}) + \beta_2(\frac{S_t}{A_{t-1}}) + \beta_3(\frac{\Delta S_t}{A_{t-1}}) + \varepsilon_t \quad (1)$$

Where: CFO_t is the operating cash flow; (ii) A_{t-1} is Total assets at the beginning of period t; (iii) S_t is Sales in period t; (iv) $\Delta S_t = S_t - S_{t-1}$; and (v) ε_t is the regression error term.

The GRCFO metric is obtained by multiplying the residual () by -1 (one) (Roychowdhury, 2006), since lower residuals indicate higher manipulation (Olsen et al., 2014; Jasman & Murwaningsari, 2018; Phillips, 2019; Lin et al., 2020). This transformation allows for a continuous measure where higher values correspond to greater levels of earnings management.

To calculate GRSG&A, the following regression was estimated:

$$\frac{SG\&A_t}{A_{t-1}} = \beta_0 + \beta_1(\frac{1}{A_{t-1}}) + \beta_2(\frac{S_t}{A_{t-1}}) + \varepsilon_t \qquad (2)$$

Where $SG\&A_t$ represents selling, general, and administrative expenses in period t. Again, the residual is multiplied by -1 to create a variable that increases with the level of manipulation.

Although Roychowdhury (2006) originally defined discretionary expenses as the sum of R&D, advertising, and SG&A, due to unavailability of data on R&D and advertising, only SG&A was used in this study.

To estimate GRPROD, the following regression was applied:

$$\frac{PROD_t}{A_{t-1}} = \beta_0 + \beta_1(\frac{1}{A_{t-1}}) + \beta_2(\frac{S_t}{A_{t-1}}) + \beta_3(\frac{\Delta S_t}{A_{t-1}}) + \beta_4\left(\frac{\Delta S_{t-1}}{A_{t-1}}\right) + \varepsilon_t \quad (3)$$

Where: (i) $PROD_t$ is sum of cost of goods sold and changes in inventory in periods *t* and *t-1*; and (ii) $\Delta S_{t-1} = S_{t-1} - S_{t-2}$.

The residual is used as the GRPROD measure, with higher values indicating greater earnings manipulation. Outliers in all three variables (GRCFO, GRSG&A, GRPROD) were treated using winsorization at the 1st and 99th percentiles. Sectors with fewer than ten observations were excluded, following the methodology of Gounopoulos and Pham (2018).

3.3.2 Independent variables of interest

Language use is closely linked to individual personality traits. The linguistic patterns of CEOs can provide insight into their cognitive and psychological profiles (Craig & Amernic, 2004). The main independent variables in this study are CEO narcissism and CEO duality. Observable proxies derived from CEO speech were used to measure narcissism, following the methodology of Chatterjee and Hambrick (2007).

The narcissism proxy is calculated as the ratio of first-person singular personal and possessive pronouns (Chatterjee & Hambrick, 2007)e.g., "I," "me," "my," "mine," "myself") to the total number of first-person pronouns (which includes both singular and plural: "I," "me," "my," "mine," "myself," "we," "us," "our," "ours," "ourselves"(Chatterjee & Hambrick, 2007). This ratio was computed through content analysis of earnings call transcripts using ATLAS.ti software.

The justification for using linguistic data lies in evidence from Chung and Pennebaker (2007), who showed that linguistic choices are often unconscious and difficult to manipulate, even under controlled conditions. Therefore, linguistic analysis is a reliable method for identifying underlying personality traits. Research in social psychology supports the use of language as a diagnostic tool for personality profiling (Mehl, Gosling & Pennebaker, 2006; Fast & Funder, 2008).

The CEO duality variable takes the value 1 if the CEO is also a member of the board of directors, and 0 otherwise (Olsen et al., 2014; Alhmood et al., 2020; Lin et al., 2020).

3.3.3 Control Variables and Model Specification

Table 2 lists the control variables, their measurement metrics, and the expected signs regarding their relationship with real earnings management.

Table 2 - Control Variables Used in the Analysis of Real Earnings Management

Variável	Métricas	Sinal Esperado e Estudos
Tenure Time	Tenure of the Chief Executive Officer.	CEOs with longer tenure are expected to avoid unethical behavior that could compromise the reputation they have established over time (Jasman & Murwaningsari, 2018).
Total number of members on the board of directors (NBM)	Natural logarithm (NL) of the total number of board members.	the literature does not offer a consensus regarding the expected sign of this variable (Kang & Kim, 2012; Talbi *et al.*, 2015).
Square of the total number of members on the board of directors $(NBM)^2$	Square of the natural logarithm of the total number of board members.	If this variable exhibits a coefficient with a sign opposite to that of NBM, it may indicate that, beyond a certain number of members, the effectiveness of the board of directors either increases or decreases (Júnior, Mellone & Saito, 2004).
Corporate governance level,	This variable takes the value of one if the company is listed in the Novo Mercado segment of B3, and zero otherwise.	Corporate governance is expected to act as a mitigating factor against managerial opportunism, particularly in companies listed under the Novo Mercado segment of B3. This segment is distinguished by the adoption of rigorous corporate governance and transparency standards, including requirements such as an independent board of directors, issuance of only common shares, and enhanced rights for minority shareholders. These mechanisms promote better alignment of interests between investors and management (Almeida-Santos *et al.*, 2011).
Earnings Management (EM)	Earnings management by accruals, calculated using the model proposed by Collins et al. (2017) model.	Quando os custos de gerenciamento via accruals são elevados, as empresas tendem a se envolver mais em gerenciamento real (Zang, 2012).
Market-to-book (MTB)	$\frac{Market\ value_{i,t}}{Net\ worth_{i,t}}$	The literature does not demonstrate a consensus regarding the expected sign of this variable (Sun, Lan & Liu, 2014; Jasman & Murwaningsari, 2018; Phillips, 2019).
Leverage	$\frac{Total\ debt_{i,t}}{Total\ asset_{i,t}}$	Leverage is expected to have a positive association with earnings management. According to Watts and Zimmerman (1985), managers of highly leveraged firms may engage in earnings manipulation to strengthen the firm's negotiating position in debt contracting and to avoid potential breaches of debt covenants.
Return on Assets (ROA)	$\frac{Net\ profit_{i,t}}{Total\ asset_{i,t}}$	the literature does not present a unified view on the expected sign of this relationship (Kang & Kim, 2012; Sun *et al.*, 2014; Olsen *et al.*, 2014; Talbi *et al.*, 2015; Jasman & Murwaningsari, 2018).
Firm Size	NL of *Total asset*$_{i,t}$	the literature lacks consensus on the expected sign of this variable (Kang & Kim, 2012; Sun *et al.*, 2014; Olsen *et al.*, 2014; Jasman & Murwaningsari, 2018; Phillips, 2019).
Economic Recession	It has a value of one in 2015 and 2016 and zero otherwise.	During periods of economic downturn, managers may be less incentivized to manipulate earnings due to increased shareholder tolerance for poor financial performance (Phillips, 2019).

Source: Research data.

To assess the relationship between narcissism, duality, and real earnings management, the following panel data model (Equation 4 was estimated.

$$GRR_{i,t} = \beta_0 + \beta_1 Narc_{i,t} + \beta_2 Narc_{i,t} * Dua_{i,t} + \beta_3 Dua_{i,t} + \beta_{4-11} Controles_{i,t} + \varepsilon_t + v_t \ (4)$$

Where: (i) $GRR_{i,t}$ is real earnings management variable (GRCFO, GRSG&A and GRPROD); (ii) $Narc_{i,t}$ is CEO narcissism; (iii) $Dua_{i,t}$ is CEO duality; (iv) $Narc_{i,t} * Dua_{i,t}$ is interaction term between narcissism and duality; (v) $Controls_{i,t}$ is set of control variables listed in Table 2; (vi) ε_t is error term; and (vii) v_i is unobserved firm-specific effects.

4 ANALYSIS OF RESULTS

Panel A of Table 3 presents the descriptive statistics for continuous variables, while Panel B displays the frequency distribution of dichotomous variables.

Table 3 Descriptive Statistics of the Real Earnings Management Variables

Panel A: Descriptive Statistics of Continuous Variables						
Variable	**Mean**	**Median**	**Maximum**	**Minimum**	**Standard Deviation**	**CV**
Tenure Time	4,7993	3,6660	40,0657	0,4381	4,6541	96,97%
Narcissism	0,2098	0,1928	0,8333	0,0000	0,1279	60,95%
NBM	9,9374	9,0000	24,0000	4,0000	3,8863	39,11%
Size	22,2427	22,1386	27,5542	18,9716	1,3238	5,95%
Leverage	0,3143	0,3110	1,1007	0,0000	0,1912	60,85%
ROA	0,0341	0,0379	0,3619	-0,5178	0,0918	269,53%
MTB	2,4160	1,6037	33,0569	-18,2550	3,3728	139,61%
GRRCFO	-0,0106	-0,0016	0,4188	-0,3972	0,1023	961,07%
GRRPROD	0,0000	0,0000	0,0000	0,0000	0,0000	122,36%
GRSG&A	-0,0040	-0,0169	0,3453	-0,3067	0,0790	1961.32%
EM	0,0367	0,0245	0,3769	0,0000	0,0425	115,97%

Panel B: Statistics of Dichotomous Variables			
Variable	**Modality**	**Frequency**	**(%)**
Duality	0	298	54,88%
	1	245	45,12%
Gender	0	3	0,55%
	1	540	99,45%
Governance Level	0	129 observations (29 companies)	23,76%
		414 observations (82 companies)	76,24%

Source: Research data.

Caption: CV = Coefficient of Variation

The continuous variables in the dataset exhibit notable variation relative to their means. This variability is evident in the coefficient of variation, which exceeds 30% for most variables—indicating considerable dispersion and, consequently, the heterogeneity of the sample. This result may reflect the diversity in size and industry sectors among the firms included in the analysis.

Most CEOs in the sample exhibited low levels of narcissism, as reflected in a median narcissism score of 0.1928 and a third quartile of 0.2812. However, the upper quartile reveals significant disparity, with the narcissism index reaching a maximum value of 0.8333, suggesting that a small subset of CEOs displayed markedly higher narcissistic tendencies.

CEO tenure—the duration an executive has held the CEO position—also showed substantial variation. The coefficient of variation was 96.97%, with tenure ranging from 0.4381 year to 40 years. Despite this range, the median tenure was 3.67 years, suggesting that most CEOs in the sample do not remain in the position for extended periods. Only 7.73% of CEOs had held the position for more than ten years.

Regarding gender, the sample was overwhelmingly male, with 99.54% of CEOs being men. The duality variable—indicating whether the CEO also held a seat on the board—was present in 45.12% of cases, meaning that a slight majority of companies (54.88%) did not have CEO representation on the board. The size of the board of directors varied across firms, ranging from four to twenty-four members.

In terms of corporate governance, 76.24% of the companies were listed under the Novo Mercado segment, which is characterized by stricter governance standards and transparency requirements. The remaining 23.76% operated under other governance levels or within the traditional market. This finding underscores a general commitment to investor protection and disclosure standards among the firms analyzed.

To address discrepancies related to firm size, the variables Size and NBM (Net Book-to-Market ratio) were log-transformed. The analysis of leverage reveals that, on average, the companies in the sample maintained low debt levels, relying more on equity financing than on third-party debt.

Regarding profitability, firms generally appeared profitable, as indicated by positive average ROA values. The market-to-book ratio (MTB) had a median of 1.6037, suggesting that market valuations of firms were generally higher than their book values—an indication of perceived growth potential by investors.

The accrual-based earnings management variable (EM) exhibited substantial variation, reflecting differing management practices across firms. As for the real earnings management proxies—GRCFO, GRPROD, and GRSG&A—the medians were -0.0064, -1.9E-09, and -0.0162, respectively. These low values are expected, as the residuals from the regressions used to compute them theoretically sum to zero.

To assess the validity of the proposed models, Chow and Breusch-Pagan tests were applied. Results from both tests rejected the null hypothesis in favor of model heterogeneity, indicating that the pooled OLS model is inappropriate for the dataset under analysis.

Subsequently, the Hausman test supported the use of fixed effects modeling to estimate the parameters. However, diagnostic tests—the modified Wald test for heteroscedasticity and the Wooldridge test for autocorrelation—rejected the null hypotheses of homoscedasticity and absence of autocorrelation, respectively. Given these violations, the model was re-estimated using Generalized Least Squares (GLS) with corrections for heteroscedasticity and autocorrelation.

The Wald test for overall model significance confirmed that the GLS models are statistically significant, thereby validating the modeling approach. Table 4 presents the results for the model in which GRCFO—abnormal operating cash flow—is the dependent variable.

Table 4 Estimation Results of the Econometric Models Using GRCFO as the Dependent Variable

GRCFO			
Variable	**Coefficient**	**P-value**	**Standard Error**
Narcissism	-0,0094	0,538	0,0151
Narcissism*Duality	0,1102	0,000***	0,0275
Duality	-0,0143	0,033**	0,0064
Tenure Time	0,0016	0,030**	0,0007
Governance Level	-0,0147	0,029**	0,0064
NBM	0,1630	0,000***	0,0329
$(NBM)^2$	-0,0464	0,000***	0,0079
EM	-0,2440	0,000***	0,0399
Size	0,0071	0,004***	0,0023
Leverage	0,0624	0,000***	0,0114
ROA	-0,4235	0,000***	0,0343
MTB	-0,0053	0,000***	0,0006
Economic Recession	-0,0232	0,000***	0,0024
Constant	-0,2665	0,0002***	0,0641
Chow	***3,53****		
Breusch-Pagan	***94,94****		
Hausman	***82,44****		
Wooldridge	***15,549****		
Modified Wald	***1,1e+32 ****		
Wald	***15482,43 ****		

Note 1: Statistical significance is indicated by the following symbols: *10%; **5%; ***1%.

Source: Research data.

In the first model, the dependent variable is abnormal operating cash flow (GRCFO). The narcissism variable is not statistically significant, which contrasts with findings in studies such as Olsen et al. (2014), Jasman and Murwaningsari (2018), and Phillips (2019).

Conversely, the duality variable exhibits a statistically significant negative effect, suggesting that when CEOs hold board membership, there is less engagement in earnings management via real activities. This result is consistent with Alhmood et al. (2020), who argue that duality may enhance decision-making efficiency by aligning executive and board-level objectives, thereby reducing goal misalignment and opportunistic behavior.

Notably, the interaction term between narcissism and duality is positive and statistically significant. This implies that narcissistic CEOs who also hold board seats are more likely to engage in real earnings management via inflated sales, possibly through aggressive revenue recognition tactics. This finding aligns with Cressey's (1953) Fraud Triangle Theory, which suggests that even if narcissistic motivation is present, the opportunity to manipulate earnings increases significantly when CEOs have direct influence over governance structures.

The CEO tenure variable is also positive and significant, indicating that longer-serving CEOs are more likely to engage in real earnings management. This finding contrasts with prior results from Jasman and Murwaningsari (2018), Phillips (2019), and Alhmood et al. (2020). In the Brazilian context, this discrepancy may reflect a perception that unethical behavior is less likely to be detected or punished over time. Another plausible explanation is that longer-tenured CEOs develop a deeper understanding of the firm's internal operations and control weaknesses, facilitating manipulation.

Finally, corporate governance level—specifically membership in the Novo Mercado segment—has a negative and statistically significant effect on real earnings management. This finding is consistent with Almeida-Santos et al. (2011), who argue that stronger governance structures constrain managerial discretion, making earnings manipulation more difficult.

The variable board size (NBM) is positively and significantly associated with real earnings management, suggesting that firms with larger boards tend to exhibit higher levels of such practices. However, the squared term of board size (NBM^2) displays a negative coefficient, indicating a non-linear relationship. This suggests the presence of an optimal board size beyond which monitoring becomes more effective, thus reducing earnings management. Below this threshold, monitoring may be weakened, allowing for greater managerial discretion. This finding aligns with the recommendation by the Brazilian Institute of Corporate Governance (IBGC, 2009), which advocates for boards comprising between five and eleven members. A larger board may also incorporate more independent and experienced directors, thereby enhancing monitoring capabilities and reducing opportunities for manipulation (Peasnell et al., 2005).

The accrual-based earnings management variable (EM) is statistically significant and negatively associated with real earnings management, indicating that firms engaging in accrual manipulation are less likely to simultaneously engage in real activity manipulation. This result supports the notion of a substitution effect between the two types of earnings management. As accruals are constrained by accounting standards and subject to reversal in subsequent periods, managers may resort to real earnings manipulation, particularly via cash flows, when accrual-based strategies are no longer viable.

The firm size variable is positive and significant in relation to the GRCFO proxy, suggesting that larger firms are more inclined to engage in real earnings management via cash flow manipulation. Larger firms possess the infrastructure necessary to support abnormal inventory and service provision strategies. Additionally, these firms may face greater pressure from external stakeholders to meet financial targets. This result corroborates findings by Kang and Kim (2012), Sun et al. (2014), and Phillips (2019).

Leverage also has a positive and statistically significant coefficient in the GRCFO model. This implies that more highly leveraged firms may engage in real earnings management to avoid breaching debt covenants and to enhance their negotiation power with creditors. These findings are consistent with the literature (Phillips, 2019; Talbi et al., 2015).

The performance variable (ROA) is negatively associated with GRCFO, indicating that more profitable firms tend to engage less in earnings management via cash flows. This is in line with the findings of Jasman and Murwaningsari (2018), Olsen et al. (2014), Sun et al. (2014), and Talbi et al. (2015).

The market-to-book ratio (MTB) also shows a negative relationship with real earnings management, suggesting that firms with greater growth opportunities, as perceived by the market, are less likely to engage in GRCFO practices. This aligns with the work of Roychowdhury (2006) and Talbi et al. (2015).

Regarding the economic recession variable, results indicate a negative and statistically significant coefficient, implying that during periods of economic downturn, managers are less likely to inflate sales. This contrasts with findings by Phillips (2019). According to Jenkins et al. (2009), such restraint during recessions may reflect the absence of investor expectations for high revenue growth in times of crisis. Moreover, the cost of artificially increasing sales may be prohibitive due to reduced liquidity and weakened customer demand, further discouraging real activity manipulation.

Table 5 Estimation Results of the Econometric Models Using GRPROD as the Dependent Variable

GRPROD			
Variable	**Coefficient**	**P-value**	**Standard Error**
Narcissism	3,26E-10	0.6198	6,50E-10
Narcissism*Duality	-4,73E-10	0.6704	1,10E-09
Duality	3,71E-10	0.2002	2,83E-10
Tenure Time	2,88E-11	0.2437	2,42E-11
Governance Level	9,49E-11	0.7157	2,58E-10
NBM	-2,02E-09	0.2578	1,75E-09
$(NBM)^2$	3,87E-10	0.3293	3,90E-10
EM	-1,43E-09	0.3638	1,55E-09
Size	**5,43E-10**	0.0000***	9,10E-11
Leverage	-9,83E-10	0.0749**	5,32E-10
ROA	1,76E-09	0.1499	1,19E-09
MTB	-6,30E-11	0.1126	3,85E-11
Economic Recession	-5,61E-11	0.6620	1,27E-10
Constant	**-1,17E-08**	0.0002***	2,80E-09
Chow	***9,15****		
Breusch-Pagan	***573,35****		
Hausman	***20,69****		
Wooldridge	***14,838****		
Modified Wald	***1,4e+06****		
Wald	***12,25****		

Source: Research data.

Note 1: Statistical significance is indicated by the following symbols: *10%; **5%; ***1%.

Table 5 presents results for the second model, in which the dependent variable is earnings management measured by abnormal production costs (GRPROD). The primary variables of interest—CEO narcissism and the interaction term between narcissism and duality—are not statistically significant in this model.

However, firm size is positively and significantly associated with GRPROD, consistent with findings by Kang and Kim (2012) and Olsen et al. (2014). This indicates that larger firms are more capable of engaging in earnings management via overproduction, as they possess the necessary production capacity and inventory systems.

A negative relationship is observed between leverage and GRPROD, suggesting that firms with higher debt levels are less likely to engage in overproduction as a means of earnings manipulation. This may be due to financial constraints, as indebted firms may lack the resources required to support abnormal increases in production and inventory (Olsen et al., 2014).

Table 6 presents the third model, where earnings management is measured via abnormal discretionary expenses (GRSG&A).

Table 6 Estimation Results of the Econometric Models Using GRSG&A as the Dependent Variable

GRSG&A			
Variable	**Coefficient**	**P value**	**Standard Error**
Narcissism	**-0,0225**	0,0140**	0,0090
Narcissism*Duality	**0,0256**	0,0060***	0,0093
Duality	**-0,0081**	0,0070***	0,0030
Tenure Time	**0,0003**	0,100	0,0002
Governance Level	**-0,0075**	0,0090***	0,0029
NBM	-0,0379	0,1700	0,0274
(NBM)²	0,0045	0,4100	0,0054
EM	0,0152	0,1500	0,0101
Size	0,0000	0,5000	0,0013
Leverage	-0,0046	0,4300	0,0058
ROA	**-0,0251**	0,0370**	0,0118
MTB	0,0004	0,3200	0,0004
Economic Recession	**0,0030**	0,0000***	0,0005
Constant	0,0496	0,2500	0,0430
Chow	***9,15****		
Breusch-Pagan	***573,35****		
Hausman	***20,69****		
Wooldridge	***14,838****		
Modified Wald	***1,4e+06****		
Wald	***12,25****		

Source: Research data.

Note 1: Statistical significance is indicated by the following symbols: *10%; **5%; ***1%.

In this model, CEO narcissism is statistically significant and negatively related to earnings management, suggesting that firms with more narcissistic CEOs tend to exhibit lower levels of manipulation through discretionary spending. This finding contrasts with that of Jasman and Murwaningsari (2018).

However, consistent with the first model, the interaction term between narcissism and duality is positive and significant, indicating that narcissistic CEOs who are also board members are more likely to engage in earnings management via discretionary expense reduction. This finding implies that positional power, when combined with narcissistic tendencies, enhances the executive's ability to influence financial outcomes. Thus, narcissistic CEOs may only exploit such strategies when governance structures grant them greater discretion.

Both duality and governance level are negatively associated with GRSG&A, suggesting that these mechanisms mitigate opportunistic behavior. Nonetheless, the presence of narcissistic CEOs on the board may undermine these safeguards, weakening their effectiveness.

In line with Jasman and Murwaningsari (2018), the variable tenure is positively associated with GRSG&A, suggesting that CEOs with longer tenure are more likely to reduce discretionary expenditures as a form of earnings management. On the other hand, firm performance (ROA) is negatively related to GRSG&A, consistent with studies by Kang and Kim (2012) and Talbi et al. (2015).

The results for the economic recession variable in this model differ from those of the first. A positive coefficient suggests that, during economic downturns, firms are more likely to engage in earnings management via discretionary expense reduction. However, this may not necessarily reflect manipulation. As firms face heightened financial pressure during recessions, cost-cutting becomes a strategic necessity. Nonetheless, excessive reductions in discretionary spending, such as training or marketing, may jeopardize the long-term viability of the firm.

5 CONCLUSION

This study aimed to contribute to the literature on executive personality and earnings management by examining a sample of 111 companies listed on B3, with the specific objective of analyzing the influence of narcissistic CEOs on real earnings management.

The analysis centers on narcissism as a key personality trait, given its potential to influence managerial behavior. Narcissistic individuals are typically self-centered, display arrogance, and show limited empathy, which may lead them to leverage their leadership roles to pursue personal gratification. These characteristics become particularly salient when such individuals occupy positions of power, such as the CEO role.

Although the study did not find a direct association between narcissistic CEOs and overall levels of real earnings management, the findings indicate that when narcissistic CEOs also serve on the board of directors, there is a significant increase in earnings management, particularly through abnormal sales and reductions in discretionary expenditures. These results suggest that board membership provides narcissistic executives with greater discretion and influence, thereby enabling them to manipulate financial outcomes to suit personal objectives.

Consistent with prior research, the presence of non-narcissistic CEOs on the board appears to be beneficial, as it is associated with lower levels of earnings manipulation and greater emphasis on sustainable, long-term profitability.

Given these findings, this study highlights the importance of robust governance mechanisms, particularly in the process of selecting and evaluating board members. Assessing the narcissistic tendencies of executives during the nomination or succession process may prove useful in reducing the risk of opportunistic behavior. A board free from narcissistic individuals may enhance decision-making transparency and accountability, contributing to more ethical corporate conduct.

In regard to earnings management through production costs, the results suggest that such manipulation is contingent on a firm's operational capabilities—specifically, its capacity to support abnormal increases in production and inventory. Since this form of manipulation requires substantial financial and physical resources, managers are likely to engage in it only when the reduction in unit costs outweighs the associated production and storage expenses. This operational constraint may explain why CEO narcissism did not exhibit a significant effect on abnormal production cost manipulation in the present study.

Regarding CEO tenure, the study finds that longer-serving executives are more inclined to engage in real earnings management. This finding points to a nuanced trade-off: while extended tenure may equip CEOs with deeper technical knowledge and familiarity with internal operations, it may also erode independence and facilitate unethical practices. CEOs with longstanding tenures are more likely to be aware of internal control weaknesses, and, as a result, more capable of exploiting them. These insights suggest that boards should consider establishing guidelines on the optimal duration of CEO appointments to balance expertise with accountability.

The study also provides empirical support for the idea that companies listed on B3's Novo Mercado segment exhibit stronger internal control mechanisms and lower levels of real earnings management, reaffirming the positive role of enhanced corporate governance standards in mitigating managerial opportunism.

Furthermore, findings indicate a substitutive relationship between accrual-based and real earnings management. When firms are constrained in their ability to manipulate accruals—due to accounting standards or the natural reversal of such items—they may shift to managing earnings through real activities, such as cash flows. This highlights the interchangeability of earnings management methods and the strategic discretion available to corporate executives.

With respect to exogenous factors, such as macroeconomic instability, the study finds that economic recessions influence the choice of earnings management strategy. During periods of economic uncertainty, firms appear to favor reductions in discretionary expenses, while in more stable periods, they are more likely to manipulate results through abnormal increases in sales. This finding reflects how external environmental conditions shape internal managerial decisions regarding financial reporting.

Despite its contributions, this study presents certain limitations. One significant limitation is the exclusion of Chief Financial Officers (CFOs), who frequently participate in earnings conference calls and play a crucial role in accounting policy decisions. Future research should consider examining how CFO narcissism affects earnings management, as incorporating CFOs into the analysis would not only increase the sample size but also offer a more comprehensive understanding of how executive personality traits influence financial outcomes.

Another limitation pertains to the study's treatment of exogenous shocks. While the analysis focuses on the 2014 Brazilian economic recession, it does not address the more recent and globally impactful COVID-19 pandemic, which began in 2020. This health crisis, much like the 2014 recession, may have significant implications for earnings management practices. Future research should examine how the COVID-19 crisis influenced earnings management among Brazilian firms, particularly those led by narcissistic executives. Such analysis could offer deeper insights into the behavioral and strategic responses of managers under extreme external pressure.

REFERENCES

Alhmood, M. A., Shaari, H., & Al-dhamari, R. (2020). CEO Characteristics and Real Earnings Management in Jordan. *International Journal of Financial Research, 11*(4), 255.

Almeida-Santos, P. S., Verhagem, J. A., & Bezerra, F. A. (2011). Gerenciamento de resultados por meio de decisoes operacionais e a governança corporativa: analise das industrias siderurgicas e metalurgicas brasileiras. *Revista de Contabilidade e Organizações, 5*(13).

American Psychiatric Association. (1994). DSM-IV: Diagnostic and Statistical Manual of Mental Disorders. *JAMA: The Journal of the American Medical Association, 272*(10), 828.

American Psychiatric Association. (2001). The character of self-enhancers: Implications for organizations. In *Personality psychology in the workplace*. (pp. 193–219). American Psychological Association. https://doi.org/10.1037/10434-008

Amernic, J. H., & Craig, R. J. (2010). Accounting as a Facilitator of Extreme Narcissism. *Journal of Business Ethics, 96*(1), 79–93.

Capalbo, F., Frino, A., Lim, M. Y., Mollica, V., & Palumbo, R. (2018). The Impact of CEO Narcissism on Earnings Management. *Abacus, 54*(2), 210–226.

Cruz, N. G., Takamatsu, R. T., & Cordeiro, F. A. (2024). Narcissism and Earnings Management. *Review of Business Management, 26*(02). https://doi.org/10.7819/rbgn.v26i02.4260

Chatterjee, A., & Hambrick, D. C. (2007). It's All about Me: Narcissistic Chief Executive Officers and Their Effects on Company Strategy and Performance. *Administrative Science Quarterly, 52*(3), 351–386. https://doi.org/10.2189/asqu.52.3.351

Collins, D. W., Pungaliya, R. S., & Vijh, A. M. (2017). The Effects of Firm Growth and Model Specification Choices on Tests of Earnings Management in Quarterly Settings. *The Accounting Review, 92*(2), 69–100. https://doi.org/10.2308/accr-51551

Craig, R. ., & Amernic, J. . (2004). Enron discourse: the rhetoric of a resilient capitalism. *Critical Perspectives on Accounting, 15*(6–7), 813–852.

Cressey, D. (1953). *Other people's Money: A study of the social psychology of embezzlement*. Free Press.

Daily, C. M., & Dalton, D. R. (1997). CEO and Board Chair Roles Held Jointly or Separately: Much Ado About Nothing? *Academy of Management Perspectives, 11*(3), 11–20.

Finkelstein, S. (1992). POWER IN TOP MANAGEMENT TEAMS: DIMENSIONS, MEASUREMENT, AND VALIDATION. *Academy of Management Journal, 35*(3), 505–538. https://doi.org/10.2307/256485

Finkelstein, S., & D'Aveni, R. A. (1994). ceo duality as a double-edged sword: how boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal, 37*(5), 1079–1108.

Freitas, M. R. D. O., Pereiras, G. M., Vasconcelos, A. C. De, & Luca, M. M. M. De. (2020). Concentração Acionária, Conselho de Administração e Remuneração de Executivos. *Revista de Administração de Empresas, 60*(5), 322–335.

Gounopoulos, D., & Pham, H. (2018). Financial Expert CEOs and Earnings Management Around Initial Public Offerings. *The International Journal of Accounting, 53*(2), 102–117.

Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics, 40*(1–3), 3–73.

Instituto Brasileiro de Governança Corporativa (IBGC). (2009). *Código das melhores práticas de governança corporativa* (4th ed.).

Ipino, E., & Parbonetti, A. (2017). Mandatory IFRS adoption: the trade-off between accrual-based and real earnings management. *Accounting and Business Research, 47*(1), 91–121.

Jasman, J., & Murwaningsari, E. (2018). The roles of internal audit quality on the relationship between narcissistic CEOs and real earnings management. *Journal of Business & Retail Management Research, 13*(01).

Jenkins, D. S., Kane, G. D., & Velury, U. (2009). Earnings Conservatism and Value Relevance Across the Business Cycle. *Journal of Business Finance & Accounting, 36*(9–10), 1041–1058. https://doi.org/10.1111/j.1468-5957.2009.02164.x

Judge, T. A., Piccolo, R. F., & Kosalka, T. (2009). The bright and dark sides of leader traits: A review and theoretical extension of the leader trait paradigm. *The Leadership Quarterly, 20*(6), 855–875.

Júnior Mellone, G., & Saito, R. (2004). Monitoramento interno e desempenho da empresa: determinantes de substituição de executivos em empresas de capital aberto no Brasil. *R.Adm, 39*(4), 385–397.

Kang, S.-A., & Kim, Y.-S. (2012). Effect of corporate governance on real activity-based earnings management: evidence from Korea/Imoniu valdymo poveikis, pagristas darbo uzmokescio valdymu: Korejos pavyzdys. *Journal of Business Economics and Management, 13*(1), 29–52. https://doi.org/10.3846/16111699.2011.620164

Kothari, S. P., Mizik, N., & Roychowdhury, S. (2015). Managing for the Moment: The Role of Earnings Management via Real Activities versus Accruals in SEO Valuation. *The Accounting Review, 91*(2), 559–586.

Lin, F., Lin, S.-W., & Fang, W.-C. (2020). How CEO narcissism affects earnings management behaviors. *The North American Journal of Economics and Finance, 51*, 101080.

Masulis, R. W., Wang, C., & Xie, F. (2012). Globalizing the boardroom—The effects of foreign directors on corporate governance and firm performance. *Journal of Accounting and Economics, 53*(3), 527–554.

McNulty, T., & Pettigrew, A. (1999). Strategists on the Board. *Organization Studies*, 20(1), 47–74. https://doi.org/10.1177/0170840699201003

Murphy, P. R. (2012). Attitude, Machiavellianism and the rationalization of misreporting. *Accounting, Organizations and Society, 37*(4), 242–259.

Nuanpradit, S. (2019). Real earnings management in Thailand: CEO duality and serviced early years. *Asia-Pacific Journal of Business Administration, 11*(1), 88–108.

Olsen, K. J., Dworkis, K. K., & Young, S. M. (2014). CEO Narcissism and Accounting: A Picture of Profits. *Journal of Management Accounting Research, 26*(2), 243–267.

Peasnell, K. V., Pope, P. F., & Young, S. (2005). Board Monitoring and Earnings Management: Do Outside Directors Influence Abnormal Accruals? *Journal of Business Finance, 32*(7–8), 1311–1346.

Phillips, E. M. (2019). *An Examination Of Narcissistic And Non_Narcissistic CEO's Financial Reporting Behavior During Times Of Market Euphoria And Crashe*. The University of Arizona.

Raskin, R., & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology, 54*(5), 890–902.

Rhodewalt, F., & Morf, C. C. (1995). Self and Interpersonal Correlates of the Narcissistic Personality Inventory: A Review and New Findings. Journal of Research in Personality, 29(1), 1–23. https://doi.org/10.1006/jrpe.1995.1001

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics, 42*(3), 335–370.

Sun, J., Lan, G., & Liu, G. (2014). Independent audit committee characteristics and real earnings management. *Managerial Auditing Journal, 29*(2), 153–172.

Talbi, D., Omri, M. A., Guesmi, K., & Ftiti, Z. (2015). The Role Of Board Characteristics In Mitigating Management Opportunism: The Case Of Real Earnings Management. *Journal of Applied Business Research (JABR), 31*(2), 661.

Watts, R. L., & Zimmerman, J. L. (1985). *Positive Accounting Theory* (1st ed.). Pearson.

Zang, A. Y. (2012). Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management. *The Accounting Review, 87*(2), 675–703.